The 1984 Roe Herring Charter Vessel Monitoring and Sampling Program

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ABSTRACT

Armstrong, R.W., 1985. The 1984 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 165: 86 p.

Twelve charter vessels made 366 sample sets on the British Columbia coast in order for fishery managers to assess the stock abundance, recruitment and state of sexual maturity of the Pacific herring (Clupea harengus pallasi). These data were used to determine the location, timing and estimated duration of the 1984 commercial roe herring fishery openings.

In addition, laboratory samples were retained after each sample set for Fisheries Research Branch scientists as part of the data base for the computer modelling system used to estimate the escapement and predict the available surplus for the 1984/1985 Pacific herring fishery. Field data, including hydroacoustic stock estimates and onboard field analysis data are contained in this report.

Key words: Pacific herring (Clupea harengus pallasi), charter vessels, stock abundance, sexual maturity, roe yield, standard length.

RÉSUMÉ

Armstrong, R.W., 1985. The 1984 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 165: 86 p.

Douze bateaux affrétés ont recueilli 366 séries d'échantillons sur la côte de la Colombie-Britiannique pour permettre aux gestionnaires des pêches d'évaluer l'importance des stocks, le recrutement et al maturité sexuelle du hareng du Pacifique (Clupea harengus pallasi). Ces données ont servi à déterminer l'emplacement, la date et la durée approximative des périodes d'ouverture de la pêche commerciale du hareng plein en 1984.

En outre, après le prélèvement de chaque série d'échantillons, on a conservé, à l'intention des scientifiques de la Direction de la recherche sur les pêches, des échantillons pour analyse en laboratoire qui feront partie de la base de données pour le système de modélisation informatisé utilisé pour évaluer le nombre de rescapés et prédire les surplus disponibles pour la pêches du hareng du Pacifique en 1984-1985. Le présent rapport renferme des données recueillies sur le terrain, notamment une estimation hydroacoustique des stocks, et des données d'analyses faites à bord.

Mots-clés: hareng du Pacifique (Clupea harengus pallasi), bateaux affrétés, importance des stocks, maturité sexuelle, production d'oeufs, longueur standard.

INTRODUCTION

In 1984, 12 herring seiners were chartered for the roe herring test fishing operation to provide pre-fishery herring stock information for fishery managers and research scientists.

The charter program objectives were as follows:

1. In-season management

   a) to estimate the overall herring biomass in each fishing location and to identify a fishable stock to meet the Fixed Quota requirement,

   b) to determine roe yields,

   c) to determine if the available herring size (length and weight) was suitable for a herring fishery,

   d) to determine roe quality, ie. incidence of abnormal roe,

   e) to measure incoming year class strength and compare it with predicted returns,

   f) to ensure "on the grounds" input from Industry via the charter vessel masters and

   g) to use as training platforms for Department of Fisheries and Oceans (DFO) field staff.

2. Research

   a) to obtain biological samples for the Fisheries Research Branch (FRB) from as many herring spawning stocks as possible. The resulting information is used to forecast the stock strength and potential catch for the following year.

In order to fulfill the above objectives, it is mandatory that the fishing master be an experienced and successful herring fisherman who is ready and able to pass on his experience to the DFO staff, and who is respected by seine and gillnet fishermen participating in the commercial fishery.

HISTORICAL REVIEW OF THE ROE HERRING CHARTER PROGRAM

Successful management of roe herring fisheries depends on the manager getting timely and accurate information on stock movement, abundance and sexual maturity.

Before 1980, seine vessels were only chartered for the period preceeding fishery openings and could participate in the commercial fishery. This meant that just when the fishery managers most urgently needed the information on roe

yields and abundance, they lost one of their key sources of data. This may have resulted in lost fishing opportunities and lost revenue to the Industry.

These vessels were not chartered for the entire fishing season strictly because the cost of buying an experienced and successful fisherman out of the roe herring fishery was prohibitive, expecially during the late 1970 boom years. An estimated cost of chartering 12 seine vessels was in excess of $1,000,000. The dramatic increase in value of roe herring, combined with the Industry requirement of a minimum roe yield of 10%, increased the need for more timely and accurate information on stock movement, abundance and sexual maturity.

During the "Bonanza Year" of 1979, million dollar seine sets were made and cash buyers were paying up to $5,000/ton on the fishing grounds. This activity resulted in additional pressure on the resource and fishery managers, thus further confirming that test vessels were required throughout the roe fishery season.

The present chartering system is the result of consultation with fisheries staff and representatives from the Industry. It was decided that Industry would get involved in providing in-season management information through the charter vessel masters. Seiners with experienced skippers would be chartered to conduct test fishing throughout the fishing season under authority of Section 4 of the Fisheries Act and Section 3 of the Fisheries Development Act. The charter seiners would carry out the test fishing operation and would be given permission to catch a specified quantity of roe herring in tons/day for the 26-day duration of the charter. As part of the Charter Agreement, the charter seiner would not participate in the roe herring fishery during the year of the charter.

In this way, the charter program was paid out of the resource, Industry was involved during the fishing season in developing the fisheries through the charter vessel masters, and a number of seiners were bought out of the open fishery thereby reducing fleet size.

This report summarizes the seine set data, roe yield information and length frequency distribution data collected from the 12 charter seiners. In order to simplify data tabulation, interpretation and comparison with previous years, all tonnage is given in short tons (907.18 kg), the distances are shown in nautical miles (1.85 km) and herring length is given in centimeters. The present report is one of a series of publications by the DFO aimed at providing the annual summary of roe herring monitoring and sampling program.

METHODS AND MATERIALS

In 1984, 12 herring seine vessels were chartered for the roe herring fishery on the B.C. coast. The charter vessels were used to assess the herring stocks in each area by echo sounding for biomass estimates and by seining for biological samples to estimate recruitment and roe yield. The normal procedure was to hydroacoustically sound the fishing grounds and then obtain seine samples from a cross-section of the herring schools in each location.

Invitations to tender were mailed to all licenced roe herring seiners, and 12 charter vessels were selected (Table 1). The selection was based on a combination of low bids (tons of roe herring per day) and a point rating system which takes into account the experience of the vessel master and the condition of the vessel and equipment. All vessels were chartered for a minimum of 26 days with provisions made for extensions of up to 5 days, if required. Bids for the successful vessels ranged between 3.9 tons/day and 5.0 tons/day for a total tonnage requirement of 1,511.6 including a total of 14 days extension (Table 1). The actual tonnage caught for payment was 1,628.86 tons. This represents an excess catch of 7.8%. All fish caught in excess of the tendered amount were sold at the Union agreed price of $800.00 per ton and the monies forwarded to the Receiver General of Canada. The total value of the excess catch was $94,192.80.

The charter timing was set to ensure that the charter vessel was available prior to and during the major spawnings in each area (Table 2). The 12 vessels were assigned to the three herring management areas (Fig. 1) as follows:

Area A (North of Cape Caution) - 5 vessels

Area B (Strait of Georgia - Johnstone Strait) - 4 vessels

Area C (West Coast Vancouver Island) - 3 vessels

The charter vessels were assigned to specific sampling locations within each management area and were given by the fishery manager general directions on where samples were required in each district. Each set location was recorded by Statistical Area (Fig. 2) and herring section (Figs. 3 and 4, Table 3). The onboard direction on sampling procedure was given by the DFO fishery officer, technician or biologist assigned to the vessel.

Specific sampling instructions, similar to those used in previous years, were placed onboard each vessel (Appendix Table 1).

Onboard Sampling Procedure

Seine sample sets were made on all large bodies of herring, and samples of about 68 kg (150 lb) were brought aboard from the set using a small meshed dipnet or brailer. A Wheelhouse and Sample Log sheet, which doubles as a length measurement data sheet, was completed after every set (Appendix Figs. 1a & b). Another random sample of approximately 18 kg (40 lb) was taken from the same set for further laboratory analysis at FRB. Samples were also retained for special FRB research studies in selected locations along the coast.

The onboard data sheets and sampling procedures are described below.

1. Onboard data records

   i) Daily log

   The daily log covers all activities of the charter vessel while

Table 1. Roe herring charter payment summary, B.C., 1984.

Vessel	Charter bid (tons) Daily rate	Charter (26 days)	Total payment (tons)	Total catch (tons)	Excess (tons)
Christav	5.0	130.0	130.0	140.0835	10.0835
Bernice C.	4.9	127.4	147.0(4)[a]	148.7785	1.7785
Bold Contender	4.25	110.5	119.5(2)[a]	119.0	0
Fisher Lassie II	4.9	127.4	127.4	274.0125[b]	29.6125
Marine Star	4.5	117.0	117.0	0	0
Westview No. I	4.75	123.5	142.5(4)[a]	143.4125	0.9125
Pacific Quest	4.8	124.8	144.0(4)[a]	144.0	0
Abraxas Provider	4.5	117	117.0	129.8695	3.8695
Sarah Margaret	4.5	117	117.0	130.763	13.763
Ocean Horizon	4.75	123.5	123.5	239.9025[c]	14.4825
Pacific Ocean	4.8	124.8	124.8	168.039	43.239
Nita Maria	3.9	101.9	101.92	0	0
Total	55.6	1,444.8	1,511.62	1,628.861	117.741(7.8%)

[a] Number in parenthesis indicates charter extension in days.
[b] Fisher Lassie II and Marine Star charter payment catch combined.
[c] Ocean Horizon and Nita Maria charter payment catch combined.

Table 2. Roe herring charter vessels by location and time period, B.C., 1984.

Vessel	Fishing master	Location	Charter timing	Charter duration (days)[a]
Christav	G. Stava	QCI[b]	Mar. 6 - 31	26
Bernice C.	W. Cadwallader	QCI	Mar. 1 - Apr. 4	30
Bold Contender	J. Hougan	Prince Rupert	Mar. 10 - Apr. 6	28
Fisher Lassie II	V. Wilson	Central Coast	Mar. 1 - 26	26
Marine Star	B. Wilson	Central Coast	Mar. 6 - 31	26
Westview I	M. Aleksich	SG/JS[c]	Feb. 20 - Mar. 23	30
Pacific Quest	J. Polonio	SG/JS	Feb. 16 - Mar. 16	30
Sarah Margaret	L. Dusman	SG/JS	Feb. 20 - Mar. 16	26
Abraxis Provider	D. Houston	SG/JS	Feb. 20 - Mar. 16	26
Ocean Horizon	J. Reid	WCVI[d]	Feb. 24 - Mar. 20	26
Pacific Ocean	A. Sorenson	WCVI	Feb. 24 - Mar. 20	26
Nita Maria	R. Webber	WCVI	Feb. 24 - Mar. 20	26

[a] The charter duration was 26 days; however, the vessels Bernice C., Bold Contender, Westview No. I and Pacific Quest had their charter duration extented.
[b] Queen Charlotte Island.
[c] Strait of Georgia - Johnstone Strait.
[d] West Coast Vancouver Island.

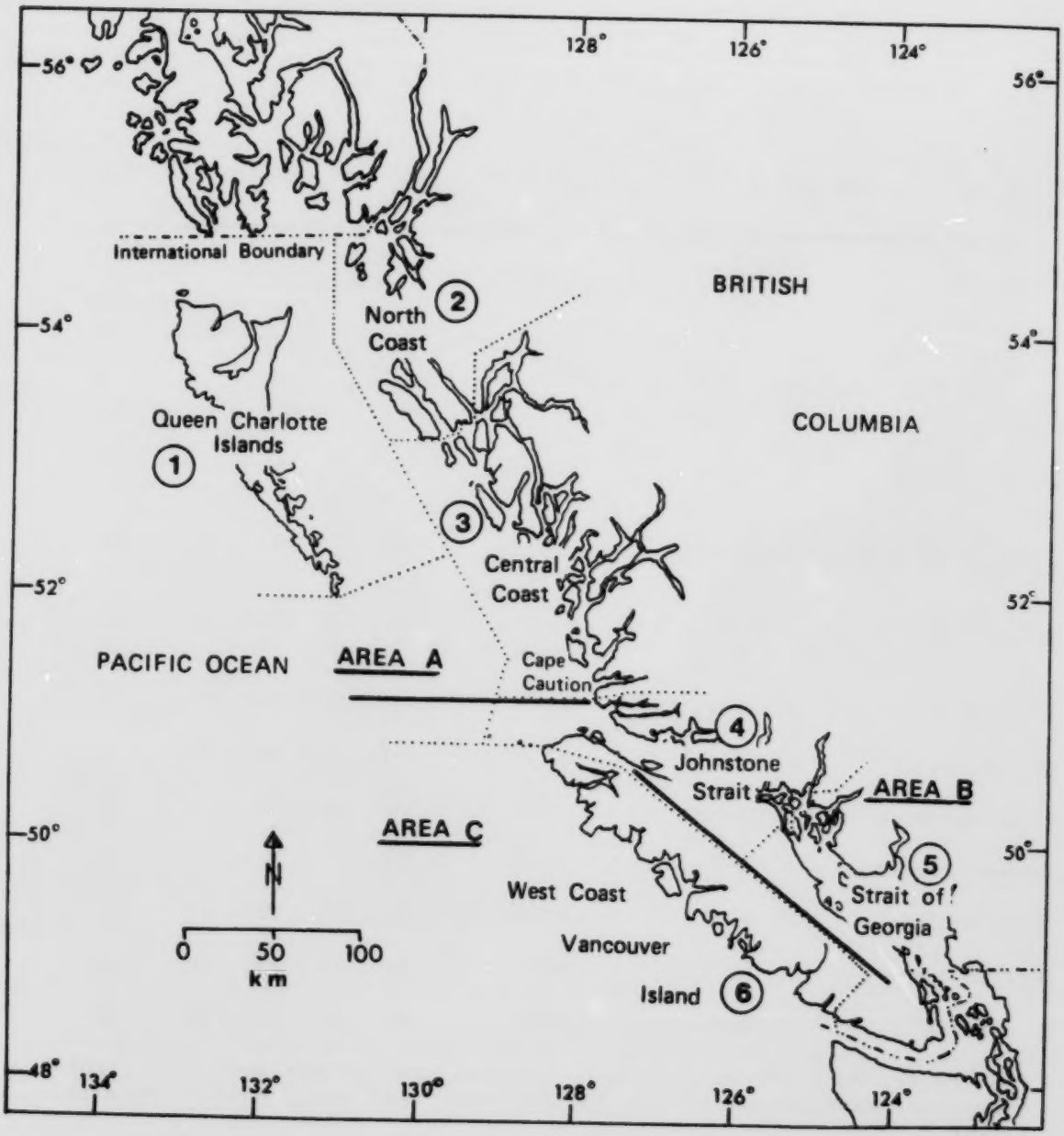


Fig. 1. Herring divisions 1 - 6 (circled numbers , dotted lines) and 1984 management areas A - C (solid lines).

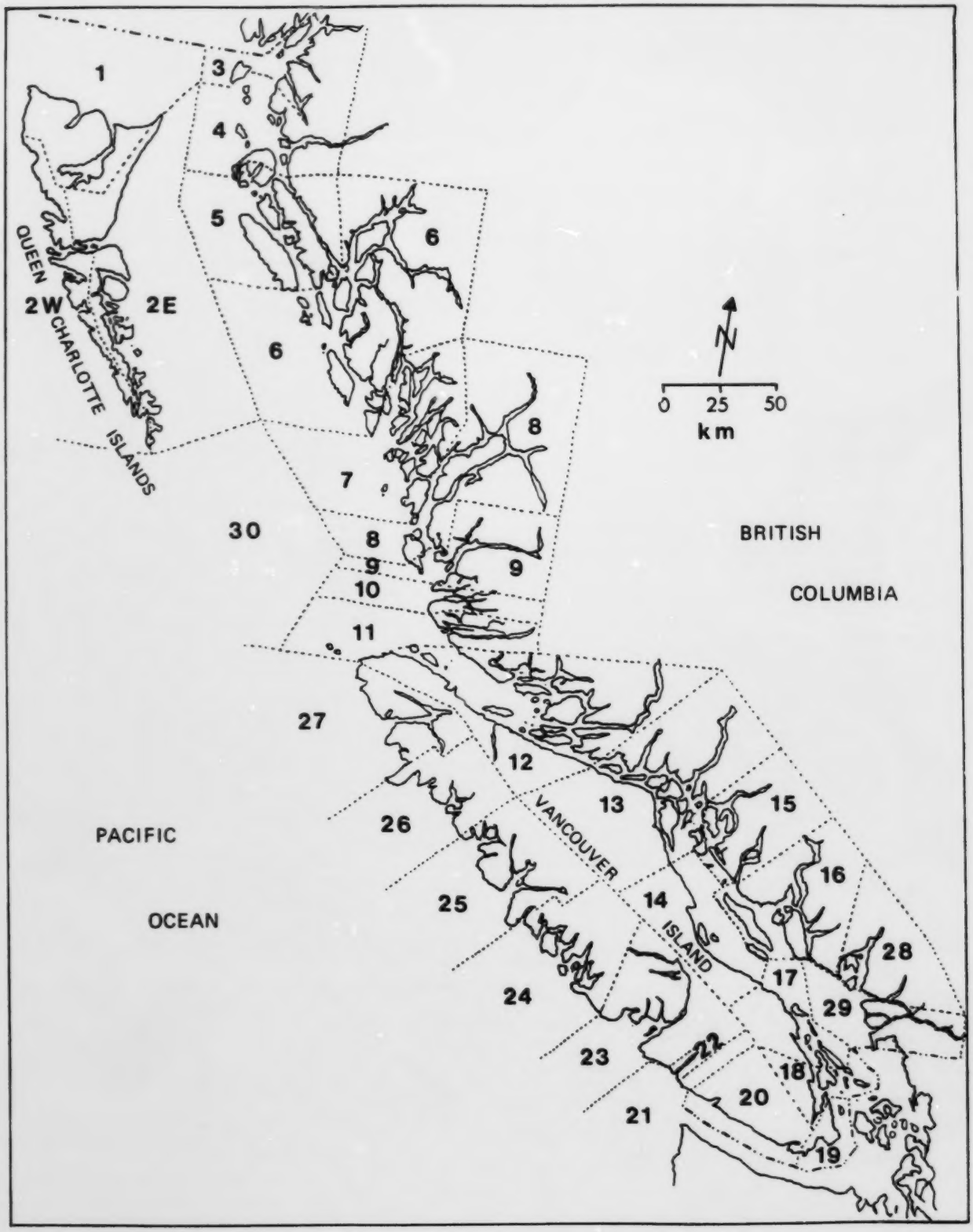


Fig. 2. Statistical Areas in British Columbia.

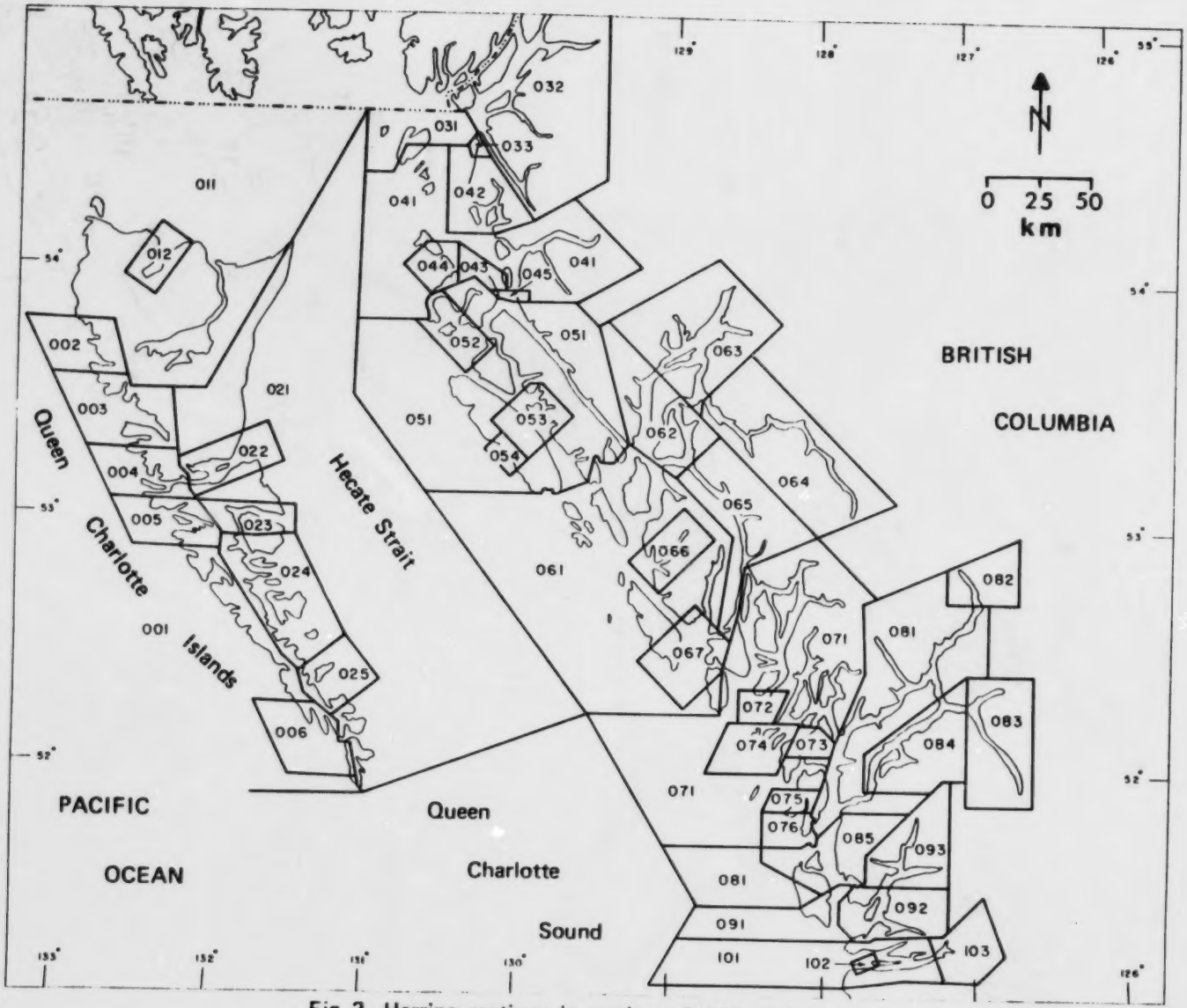


Fig. 3. Herring sections in northern British Columbia.

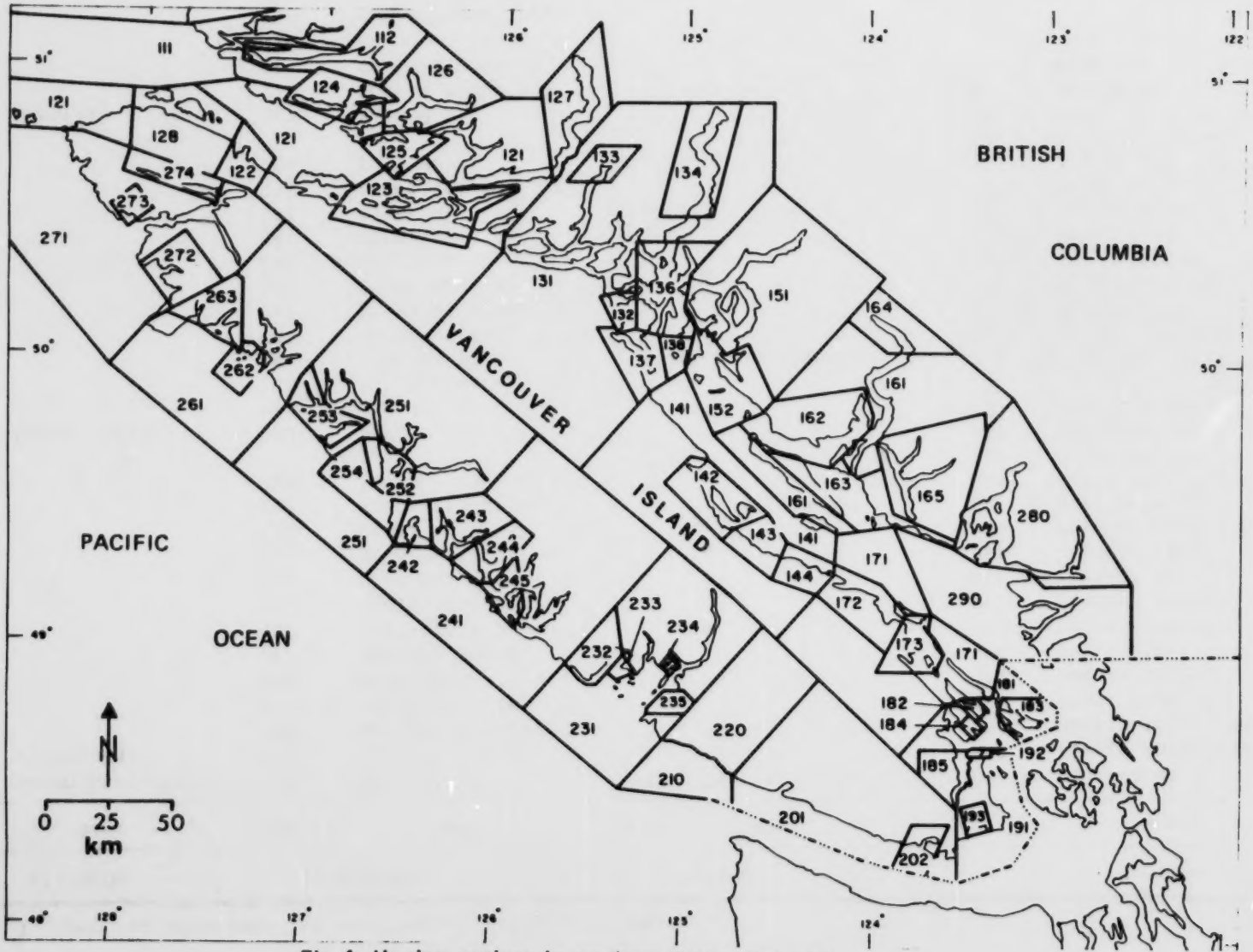


Fig. 4. Herring sections in southern British Columbia.

Table 3. Herring divisions and sections in British Columbia.

DIVISION		SECTION	
Code	Name	Code	Name
1	Queen Charlotte Islands	011	Other Area 1
		012	Naden Harbour
		006	Louscoone Inlet
		001	Other Area 2W
		002	Port Louis
		003	Rennell Sound
		004	Cartwright Sound
		005	Englefield Bay
		023	Cumshewa Inlet
		025	Skincuttle Inlet
		021	Other Area 2E
		022	Skidegate Inlet
		024	Laskeek Bay
2	North Coast	033	Port Simpson
		042	Big Bay
		043	Malacca Passage
		044	Edye Passage
		045	Gibson Group
		052	Kitkatla Channel
		031	Other Area 3
		032	Portland Inlet
		041	Other Area 4
		051	Other Area 5
		053	Anger Island
		054	Foul Bay
3	Central	067	Kitasu Bay
		072	Powell Anchorage
		073	Gunboat Passage
		074	Thompson Bay
		075	McNaughton Group
		076	Kildidt Sound
		085	Kwakshua Channel
		084	Burke Channel

DIVISION		SECTION	
Code	Name	Code	Name
3	Central (cont'd)	091	Other Area 9
		092	Rivers Inlet Mouth
		093	Rivers Inlet Head
		101	Other Area 10
		102	Takush Harbour
		103	Smith Inlet Head
		061	Other Area 6
		062	Promise Island
		063	Kitimat Arm
		064	Gardner Canal
		065	Princess Royal Channel
		066	Surf Inlet
		071	Other Area 7
		081	Other Area 8
		082	Kimsquit Bay
		083	Bentinck Arms
4	Johnstone Strait	123	Cracroft Island
		124	Watson Island
		125	Eden Island
		126	Kingcome Inlet
		127	Knight Inlet
		111	Other Area 11
		112	Nugent Sound
		121	Other Area 12
		122	Beaver Harbour
		128	Goletas Channel
		131	Other Area 13 Strait
		132	Kanish Bay
		133	Loughborough Inlet
		134	Bute Inlet

Table 3. Herring divisions and sections in British Columbia (cont'd).

DIVISION		SECTION	
Code	Name	Code	Name
5	Strait of Georgia	152	Lund
		162	Stillwater
		142	Baynes Sound
		143	Qualicum
		144	French Creek
		172	Nanoose Bay
		173	Yellow Point
		182	Ganges Harbour
		183	Plumper Sound
		290	Boundary Bay
		136	Other Area 13 Gulf
		137	Heriot Bay
		138	Marina Island
		141	Other Area 14
		151	Other Area 15
		161	Other Area 16
		163	Pender Harbour
		164	Queens Reach
		165	Sechelt Inlet
		171	Other Area 17
		181	Other Area 18
		184	Fulford Harbour
		185	Saanich Inlet
		191	Other Area 19
		192	Tsehum Harbour
		193	Victoria Harbour
		201	Other Area 20
		202	Sooke Inlet
		280	Howe Sound
6	West Coast of Vancouver Island	232	Macoah Pass
		233	Mayne Bay
		210	Area 21
		218	Offshore Area 21
		220	Nitinat Lake
		231	Other Area 23
		234	Useless Inlet
		235	Bamfield Inlet
		238	Offshore Area 23
		244	Whitepine Cove
		245	Meares Island
		241	Other Area 24
		242	Hesquiat Harbour
		243	Sydney Inlet
		248	Offshore Area 24
		252	West Nootka
		254	Bajo Point
		253	Nuchatlitz Inlet
		272	Brooks Bay
		273	Winter Harbour
		251	Other Area 25
		261	Other Area 26
		262	Clanninick Cove
		263	Checleset Bay
		271	Other Area 27
		274	Holberg Inlet

assessing the herring stocks. This includes a summary of discussions with the vessel master on fish movement and behaviour patterns. The daily logs from the previous year are also placed aboard the charter vessels as a reference for past fish behavior and distribution patterns in a particular location.

ii) Wheelhouse and Sample Log

This data sheet is completed after every set, including water hauls, and provides a record of the seine set including biomass estimates and roe yield information (Appendix Figs. 1a and 1b). Information from this data sheet is reported to the District Management Coordinator by radio telephone.

iii) Onboard sampling

a) Herring measurement

Standard length measurements (Appendix Fig. 2) obtained from a random sample of 50 herring are recorded directly on a Wheelhouse and Sample Log (Appendix Figs. 1a and 1b). The herring below a "cutoff" length (predetermined from past year's age/length data) are judged to be recruiting herring (Appendix Table 2). These small herring are less desirable due to having smaller gonads and thus giving lower roe yields. In addition, changes in the percentage of herring below the "cutoff" length could indicate a change in stock composition and may be important in setting fishery boundaries.

2. Roe yield

During the 1984 roe herring fishery, two methods of determining roe yield were used:

a) Volumetric method - this is the commonly used method and consists of filling a standard 18 l (4 imp. gal.) bucket level to the top with herring, stripping the ripe female roe into a calibrated volumetric cylinder and recording the percentage off the scale (Appendix Table 3).

b) Weight method used in the Strait of Georgia - the actual weight of the herring sample and roe is used to calculate the roe yield (Appendix Table 4).

In this report, the roe yield information table give volume and adjusted volume or weight and adjusted weight depending on the area sampled. The adjusted roe yield values assume a 50:50 male/female sex ratio and the formula used for this adjustment is shown in Appendix Table 5. Generally, the herring population will have a 50:50 male/female sex ratio. However, this may not be true in all cases.

For example, if the stocks are in a declining phase, two-year-old males may recruit to the spawning stock, rendering males the dominant sex; males breaking off from the main school just prior to spawning could be another factor affecting the overall sex ratio. Therefore, a 50:50 male/female sex ratio should be assumed with caution.

3. Laboratory samples

After each set, a biological sample containing a minimum of 100 herring was placed in a plastic bucket, sealed and either frozen or iced down for delivery to FRB for further analysis. During 1984, additional FRB samples were retained from preselected locations along the coast for determining herring fecundity and the Gonosomatic Index (GSI) used in predicting the rate of herring maturation.

RESULTS

During the 1984 roe herring charter program, the 12 charter seiners made 366 seine sample sets for an average of 30.5 sets per vessel (Table 4). A total of 715 roe tests were carried out onboard the charter vessels and 284 samples were retained for the FRB laboratory (Table 4). Samples were also retained for special research studies, i.e. Gonosomatic Index and fecundity studies. Hydroacoustic biomass estimates, roe yield information, sea surface water temperatures and length frequency distributions of herring were also recorded for each seine sample set (Tables 5-28). In 1984, roe maturities of the fish caught ranged between 10.0% and 13.6%.

ACKNOWLEDGEMENTS

The author would like to thank the charter vessel masters and crews for their "above the call of duty" effort during the test fishery. In addition to obtaining samples and providing biomass estimates, the charter vessel masters were part of the management team and were directly involved in management decisions for the commercial fishery openings, and they did an admirable job.

Appreciation is expressed to the fishery officers, technicians and biologists who ensured that sampling guidelines were followed and the data recorded in a concise manner. Thanks are also extended to Jim Mitchell who monitored the charter payment catch and did an excellent job, to Alvin Sewid who organized the sampling equipment, to Dennis Chalmers and Lloyd Webb who reviewed the text and to Alice Fedorenko who edited and prepared the report for publication. A special thanks is extended to Shiela Dawe for tabulating the data from the raw data sheets and to Valerie Rogers and the staff of the SEP Information/Processing Center for typing the drafts.

Table 4. Number of seine sets and roe tests by charter vessel, B.C., 1984.

Statistical Area	Charter vessel	No. of sets	No. of roe tests	No. of biological samples retained
2E	Christav	34	68	23
2W	Bernice C.	14	14	6
3-5	Bold Contender	35	54	27
6-10	Fisher Lassie II	36	64	31
6-10	Marine Star	27	79	24
12-18	Westview I	61	119	50
12-18	Pacific Quest	39	80	35
12-18	Sarah Margaret	36	69	32
12-18	Abraxas Provider	44	73	24
23	Ocean Horizon	25	68	22
24	Pacific Ocean	11	22	8
25-27	Nita Maria	4	5	2
Total		366	715	284
Average		30.5	60	24
Range		4-61	5-119	2-50

Table 5. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 2E AND 3, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
025 (2E)	1	Between Huxley I. & Newberry Pt.	06/03/84	0730		150-200	50-60	7.9	1	53	52	48	48	10.0	10.53	36	3	9		
									2	53	54	46	46	11.0	11.83	36	1	9		
									3	43	45	52	55	12.0	10.97	45	-	7		
024 (2E)	2	1 mi N. of Werner Pt.	06/03/84	1820	3600+		200+	8.0	1	70	51	68	49	3.5	3.55	18	7	43		
									2	82	59	58	41	2.0	2.42	12	2	44		
									3	80	59	56	41	3.0	3.64	14	4	38		
024 (2E)	3	Hoskins Islets	06/03/84	1955			50	8.1	1	63	56	50	44	2.0	2.26	8	2	40		
									2	54	42	76	58	2.0	1.71	13	3	60		
									3	61	54	52	46	3.5	3.80	15	3	34		
025 (2E)	4	1 mi N. of Kat I.	07/03/84	0845	1500	600-700	15	8.0	1	41	37	70	63	12.5	9.90	57	2	11		
									2	57	58	42	42	10.5	12.38	36	2	4		
									3	51	49	54	51	12.0	11.67	42	3	9		
025 (2E)	5	Newberry Pt.	07/03/84	1815		300+	300+	8.0	1	50	49	53	51	10.0	9.71	35	1	17		
									2	61	62	38	38	6.5	8.46	27	2	9		
									3	47	45	57	55	10.5	9.58	40	2	15		
024 (2E)	6	1 mi E.SE. of All Alone Stone	08/03/84	0820		200+	200+	8.1	1	57	55	46	45	5.0	5.59	22	8	16		
									2	58	53	52	47	8.5	8.99	34	3	15		
									3	55	53	49	47	6.0	6.37	27	4	18		
024 (2E)	7	Marco Rock	08/03/84	1730		200-300	0	8.1	-	Water haul										
024 (2E)	8	Werner Pt.	08/03/84	1815		600-700	100-200	8.1	1	58	50	57	50	6.0	6.05	25	7	25		
									2	59	48	64	52	5.5	5.29	24	3	37		
									3	70	55	58	45	6.0	6.62	28	4	26		
025 (2E)	9	Newberry Pt.	09/03/84	1015	4000	200-300	20	8.1	1	51	49	54	51	7.5	7.30	29	3	22		
									2	71	61	45	39	4.0	5.15	19	1	25		
									3	72	60	48	40	7.5	9.38	33	2	13		
025 (2E)	10	W. Side of Huxley I.	10/03/84	0955		80	10	8.3	1	60	47	68	53	6.5	6.12	28	2	38		
									2	68	55	55	45	5.5	6.15	22	6	27		
									3	66	52	61	48	5.0	5.21	26	6	29	1	
025 (2E)	11	1 mi N. of Park I.	10/03/84	1100		200-300	0	8.2	-	Water haul										
025 (2E)	12	1/2 mi S. of Newberry Pt.	10/03/84	1220	4000-4500	500-600	200+	8.2	1	59	48	63	52	8.0	7.75	37	6	20		
									2	63	52	59	48	7.5	7.75	36	5	18		
									3	74	56	57	44	7.0	8.05	35	4	18		

Table 5 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 2E AND 3, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
025 (2E)	13	Dolomite Pt.	11/03/84	0705		100	10-20	8.1	1	55	52	50	48	12.0	12.61	36	2	12		
									2	54	51	52	49	10.5	10.69	40	-	12		
									3	43	40	65	60	13.5	11.21	49	3	13		
025 (2E)	14	E. Side of Kat I.	11/03/84	1440	4000	60-70	0	8.1	-	Water haul										
025 (2E)	15	W. Side of Section I.	11/03/84	1640		600-700	300+	8.2	1	61	54	51	46	9.0	9.89	43	2	6		
									2	55	48	60	52	10.0	9.58	45	5	10		
									3	62	53	54	47	10.0	10.73	42	4	8		
025 (2E)	16	1 mi SE. of Kat I.	12/03/84	0715		500-600	200+	8.1	1	55	50	56	50	10.5	10.40	41	4	11		
									2	60	53	53	47	11.0	11.72	42	3	8		
									3	61	53	55	47	10.0	10.55	40	1	14		
025 (2E)	17	W. Side of Section I.	12/03/84	0940		100	0	8.1	-	Water haul										
025 (2E)	18	1/2 mi NE Park I.	12/03/84	1010		100	0	8.1	-	Water haul										
025 (2E)	19	1/2 mi S. Section I.	12/03/84	1055		500	50	8.1	1	55	49	58	51	12.5	12.18	46	4	8		
									2	72	55	58	45	10.0	11.21	43	8	7		
									3	61	52	56	48	12.5	13.05	53	-	3		
025 (2E)	20	1/2 mi N. of Huxley I.	13/03/84	1040	5500	400	200	8.1	1	72	63	42	37	9.5	12.91	35	1	6		
									2	74	62	45	38	9.0	11.90	38	3	4		
									3	65	59	46	41	11.0	13.29	41	2	3		
025 (2E)	21[1]	W. Side Alder I.	15/03/84	1100		400-500	30	8.2	1	60	48	66	52	13.5	12.88	59	3	4		
									2	61	52	57	48	12.0	12.42	50	3	4		
									3	58	49	61	51	13.0	12.67	54	2	5		
025 (2E)	22[1]	SW. Side Alder I.	15/03/84	1315		100-200	50-60	8.3	1	42	41	60	59	15.0	12.76	56	4	-		
									2	48	48	53	52	13.5	12.86	46	2	5		
									3	50	46	58	54	14.0	13.04	50	1	7		
025 (2E)	23	W. Side Koga Islet	16/03/84	0805		100	5	8.2	-	No information										
025 (2E)	24[1]	1/2 mi NW. Section I.	16/03/84	0925		75	-	8.2	-	Water haul										
025 (2E)	25	SW. Side of Alder I.	16/03/84	1700		75	75	8.2	1	53	49	55	51	12.0	11.79	48	2	5		
									2	59	56	47	44	10.0	11.29	41	1	5		
									3	58	55	47	45	12.0	13.39	43	1	3		

Table 5 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 2E AND 3, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
025 (2E)	26	1/2 mi W. Koga Islet	17/03/84	0725		75-100	5	8.1	-	No information										
025 (2E)	27	1/2 mi W. Section I.	17/03/84	0820		50	30	8.1	1	63	53	55	47	9.0	9.66	44	4	7		
									2	70	58	50	42	11.0	13.19	48	1	1		
									3	65	55	54	45	11.0	12.11	48	2	4		
									4	73	57	54	43	7.0	8.24	34	3	17		
033 (3)	28	1 mi S. of Gordon Pt.	20/03/84	1015		200-300	-	7.1	1	72	49	75	51	2.0	1.96	22	4	49		
033 (3)	29	1 mi S. of Gordon Pt.	20/03/84	1400	4000	100	20	7.3	1	68	42	93	58	7.5	6.49	50	11	32		
									2	88	54	76	46	5.5	5.94	35	6	35		
									3	90	53	81	47	5.5	5.80	35	13	33		
033 (3)	30	E.Side of Birnie I.	21/03/84	0840		50-70	<1	7.1	-	No information										
024 (2E)	31	N. Shore Atli Inlet	23/03/84	1715		200-300	115	8.1	1	67	48	72	52	14.0	13.51	69	2	1		
									2	62	47	70	53	14.0	13.21	65	1	4		
									3	69	45	84	55	14.0	12.75	79	1	4		
024 (2E)	32	Kilmington Pt.	25/03/84	1100	No information															
024 (2E)	33	Selwyn Inlet			No information															
024 (2E)	34	Selwyn Inlet	25/03/84	1850	1500-2000	300-400	300-400	7.9	1	53	44	67	56	14.0	12.54	64	-	3		
									2	60	48	66	52	14.0	13.36	61	-	5		
									3	50	43	67	57	14.5	12.65	65	1	1		

Seine Opening

Management sub-area 2-13 (west side of Burnaby Island) opened on March 12 for 51 minutes for a hailed catch of 5,100 tons with an estimated roe yield of 11-12%.

Gillnet Opening

Management sub-area 2-14 (Poole Inlet) opened on March 14th for a hailed catch of 591 tons with an estimated roe yield of 12%.

[1]Charter herring for the Christav and Bernice C.

Table 6. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 2E AND 3, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
025 (2E)	1	Between Newberry Pt. & Huxley I.	06/03/84	0730	1								3	6	2	13	18	8				50	22.7	19.0	0
024 (2E)	2	1 mi N. of Werner Pt.	06/03/84	1820	2						2	7	13	7	4	9	5	2				49	20.7	19.0	18
024 (2E)	3	Hoskins Islets	06/03/84	1955	3							5	10	6	5	9	10	4				49	21.5	19.0	10
025 (2E)	4	1 mi N. of Kat I.	07/03/84	0845	4						1	5	3	6	16	16	3	1				51	21.4	19.0	2
025 (2E)	5	Newberry Pt.	07/03/84	1815	5							8	6	10	13	10	2	1				50	20.9	19.0	0
024 (2E)	6	1 mi E. SE. of All Alone Stone	08/03/84	0820	6						4	7	8	7	11	9	4					50	20.6	19.0	8
024 (2E)	7	Marco Rock	08/03/84	1730	-						Water haul											-	-	-	-
024 (2E)	8	Werner Pt.	08/03/84	1815	7						1	6	4	7	7	13	6	6	1			51	21.7	19.0	14
025 (2E)	9	Newberry Pt.	09/03/84	1015	8							2	8	5	4	8	14	7	1	1		50	22.3	19.0	4
025 (2E)	10	W. Side of Huxley I.	10/03/84	0955	9							3	15	8	5	9	8		1			49	21.1	19.0	6
025 (2E)	11	1 mi N. of Park I.	10/03/84	1100	-						Water haul											-	-	-	-
025 (2E)	12	1/2 mi S. of Newberry Pt.	10/03/84	1220	10							4	9	10	4	12	7	3				49	21.4	19.0	8
025 (2E)	13	Dolomite Pt.	11/03/84	0705	11							2	9	8	3	15	13	1				51	21.7	19.0	4
025 (2E)	14	E. Side of Kat I.	11/03/84	1440	-						Water haul											-	-	-	-
025 (2E)	15	W. Side of Section I.	11/03/84	1640	12						2	4	10	3	5	12	12	4				52	21.6	19.0	12
025 (2E)	16	1 mi SE. of Kat I.	12/03/84	0715	13					1		2	7	8	6	8	12	6	1			51	21.9	19.0	6
025 (2E)	17	W. Side of Section I.	12/03/84	0940	-						Water haul														

Table 6 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 2E AND 3, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
025 (2E)	18	1/2 mi NE. Park I.	12/03/84	1010	-	Water haul																-	-	-	-
025 (2E)	19	1/2 mi S. of Section I.	12/03/84	1055	14				1		1	1	12	5	1	15	9	3	1	1		50	21.7	19.0	6
025 (2E)	20	1/2 mi NE. of Huxley I.	13/03/84	1040	15						1	5	9	8	2	12	16	3	1			57	21.7	19.0	11
025 (2E)	21	W. Side of Alder I.	15/03/84	1100	16							1	12	8	2	12	12	4				51	21.8	19.0	2
025 (2E)	22	SW. Side of Alder I.	15/03/84	1315	17							1	6	5	6	13	16	4	2			53	22.3	19.0	2
025 (2E)	23	W. Side Koga Islet	16/03/84	0805	-	No information																-	-	-	-
025 (2E)	24	1/2 mi NW Section I.	16/03/84	0925	-	No information																-	-	-	-
025 (2E)	25	SW. Side of Alder I.	16/03/84	1700	18							3	4	4	6	8	16	6	3			50	22.5	19.0	6
025 (2E)	26	1/2 mi W. of Koga Islet	17/03/84	0725	-	No information																-	-	-	-
025 (2E)	27	1/2 mi W. of Section I.	17/03/84	0820	19						2	4	12	7	6	7	9	2		1		50	21.2	19.0	12
033 (3)	28	1 mi S. of Gordon Pt.	20/03/84	1015	-	No information																-	-	-	-
033 (3)	29	1 mi S. of Gordon Pt.	20/03/84	1400	20					4	7	8	8	7	5	7	2	1	1			50	20.0	18.0	22
033 (3)	30	E. Side of Birnie I.	21/03/84	0840	21			1	1	3	11	16	11	4	4				1			52	18.8	18.0	31
024 (2E)	31	N. Shore Atli Inlet	23/03/84	1715	22					4	10	15	31	7	9	14	8	2				100	20.1	19.0	29
024 (2E)	32	Kilmington Pt.	25/03/84	1100	-	No information																-	-	-	-
024 (2E)	33	Selwyn Inlet				No information																			
024 (2E)	34	Selwyn Inlet	25/03/84	1850	23						1	7	9	7	10	6	10					50	21.0	19.0	16

Table 7. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "BERNICE C", STAT. AREA 2W, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M No.	M %	F No.	F %	Vol.	Adj. vol.	#1	#2	#3		
002 (2W)	1	Port Louis	03/03/84	0912		200-300	0	-	-	Water haul										
002 (2W)	2	N. of Taylor Shoal	03/03/84	0958	200	20-30	0	-	-	Water haul										
002 (2W)	3	1 mi N. Taylor Shoal	03/03/84	1215		100	200	7.5	1	33	50	33	50	10.0	10.0	31	2	-		
									2	35	53	31	47	11.0	11.70	29	1	1		
002 (2W)	4	Off Steel Creek	04/03/84	0955	500-600+	30	30	7.5	1	44	56	35	44	12.0	13.54	31	3	1	1	
									2	31	42	43	58	14.0	12.05	39	2	2		
003 (2W)	5	Outside Richardson Head	05/03/84	1556	250	200	60	8.0	1	25	35	47	65	0.5	0.38	2	1	44		
									2	35	48	38	52	0.0	-	-	3	35		
003 (2W)	6	1/2 mi N. of Lauder I.	06/03/84	1140	150-200	50-60	40	7.5	1	43	54	36	46	0.0	-	-	1	35		
									2	42	52	39	48	0.0	-	-	-	39		
006 (2W)	7	Flamingo Inlet	11/03/84	1535	50-60	20-30	-	8.3	-	Water haul										
006	8	Flamingo Inlet	11/03/84	1600	50-60	20-30	-	8.3	-	Water haul										
006 (2W)	9	Flamingo Inlet	11/03/84	1700	100	30	20	8.3	1	35	38	58	62	14.0	11.22	48	3	7	4	
									2	38	44	49	56	11.0	9.77	40	-	9	3	
									3	39	41	57	59	14.0	11.78	48	2	7	3	
025 (2W)	10	Off Kingfisher Cove	12/03/84	1805	1200	500	200	8.3	1	62	56	49	44	9.0	10.20	38	2	9		
									2	55	51	53	49	9.5	9.67	43	-	10		
									3	54	48	59	52	10.5	10.06	47	4	8		
005 (2W)	11	Opposite Hastings Pt.	17/03/84	1000		10	10	7.9	-											
005 (2W)	12	Opposite Sangster Pt.	19/03/84	0810		20-30	0	7.5	-	Water haul										
005 (2W)	13	Inside Sangster Pt.	19/03/84	0845		20-30	0	7.5	-	Water haul										
003 (2W)	14	Off Richardson Head	21/03/84	0817		50	0	-	-	Water haul										

No commercial fishery openings in Area 2W.
Charter payment herring taken by "Christav" in 2E.

Table 8. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "BERNICE C", STAT. AREA 2W, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
002 (2W)	1	Port Louis	03/03/84	0912	-			Water haul														-	-	-	-
002 (2W)	2	N. of Taylor Shoal	03/03/84	0958	-			Water haul														-	-	-	-
002 (2W)	3	1 mi N. Taylor Shoal	03/03/84	1215	1								1			3	26	17	4			51	23.9	20.0	2
002 (2W)	4	Off Steel Creek	04/03/84	0955	2									1		8	18	22	2			51	23.8	20.0	0
003 (2W)	5	Outside Richardson Head	05/03/84	1556	3										2	5	22	16	4	2		51	23.9	20.0	0
003 (2W)	6	1/2 mi N. of Lauder I.	06/03/84	1140	4											6	19	17	9			51	24.1	20.0	0
006 (2W)	7	Flamingo Inlet	11/03/84	1535	-			Water haul														-	-	-	-
006 (2W)	8	Flamingo Inlet	11/03/84	1600	-			Water haul														-	-	-	-
006 (2W)	9	Flamingo Inlet	11/03/84	1700	5					1		3	5	5	2	9	9	14	2			50	22.5	20.0	18
025 (2W)	10	Off Kingfisher Cove	12/03/84	1805	6					1	1	4	10	10	6	11	9					52	21.1	20.0	31
005 (2W)	11	Opposite Hastings Pt.	17/03/84	1000	-																	-	-	-	-
005 (2W)	12	Opposite Sangster Pt.	19/03/84	0810	-			Water haul														-	-	-	-
005 (2W)	13	Inside Sangster Pt.	19/03/84	0845	-			Water haul														-	-	-	-
003 (2W)	14	Off Richardson Head	21/03/84	0817	-			Water haul														-	-	-	-

Table 9. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "BOLD CONTENDER", STAT. AREAS 3 - 5, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
052 (5)	1	Kitkatla Inlet	12/03/84	0700	0.5	0.5	0.25	6.5	1	75	55	61	45	0	-	-	2	59	6	
033 (3)	2	Grassy Pt.	12/03/84	1755	25	25	-	6.5	2	64	50	63	50	0	-	-	1	62	3	
									-	Water haul										
033 (3)	3	Grassy Pt.	13/03/84	0715	400	70	70	7.0	1	71	54	60	46	0	-	-	15	45		
									2	54	48	59	52	2.5	2.39	19	12	28		
									3	58	50	59	50	2.0	1.98	13	7	39		
032 (3)	4	Steamer Pass	13/03/84	1430	500+	200	150	7.9	1	99	60	65	40	0	-	1	1	63		9
032 (3)	5	Emma Pass	14/03/84	0610	100	50	0	-	2	113	64	63	36	0	-	-	2	61		3
									-	Water haul										
033 (3)	6	Grassy Pt.	15/03/84	0915	500	50	0	-	-	Water haul										
032 (3)	7	Steamer Pass	15/03/84	1355	1000	150	2	6.6	1	85	40	128	60	0	-	-	-	128		13
033 (3)	8	Birnie I.	15/03/84	1755	2700	500	0	6.6	2	89	44	115	56	0	-	-	-	115		35
									-	Water haul										
033 (3)	9	Birnie I.	15/03/84	1840	2700	250	10	6.9	1	84	55	69	45	0.5	0.55	9	4	56		18
033 (3)	10	Grassy Pt.	16/03/84	0810	3200	500	150	7.1	2	104	63	61	37	0.25	0.34	5	1	55		29
									1	60	54	52	46	5.0	5.39	22	5	25		
033 (3)	11	Middle of Port Simpson Bay	16/03/84	1000	2700	150	0	6.5	2	63	58	45	42	3.5	4.20	15	2	28		
									-	Water haul										
033 (3)	12	Middle of Port Simpson Bay	16/03/84	1040	2700	200	200	7.2	1	69	56	55	44	5.5	6.19	27	10	18		
052 (5)	13	Kitkatla Gravel Pit	17/03/84	0910		2	15	7.1	2	75	57	57	43	5.0	5.79	31	8	18		
									1	57	48	61	52	11.5	11.12	53	5	3		
052 (5)	14	Kitkatla	19/03/84	0655	500	25	25	6.9	2	75	61	47	39	9.5	12.34	42	3	2		
									1	73	61	47	39	8.5	10.84	42	4	1		
052 (5)	15	Kitkatla	19/03/84	1020	300	40	40	7.2	2	75	57	56	43	8.0	9.37	41	4	11		
									1	62	52	57	48	9.5	9.92	47	3	7		
052 (5)	16	Kitkatla - Snass Pt.	20/03/84	0730		75	75	6.9	2	70	54	59	46	9.75	10.67	45	4	10		
									1	58	50	59	50	11.5	11.41	56	2	1		
									2	84	62	52	38	10.0	13.09	47	4	1		

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "BOLD CONTENDER", STAT. AREAS 3 - 5, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
052 (5)	17	Kitkatla	20/03/84	1100		70	0	6.8	-	Water haul										
052 (5)	18	Kitkatla - W. of Gurd I.	20/03/84	1220	300	125	125	7.3	1	72	52	66	48	8.0	8.37	45	7	14		
									2	74	53	65	47	10.0	10.68	54	3	8		
									3	63	48	69	52	10.0	9.56	55	3	11		
052 (5)	19	Kitkatla	21/03/84	0730		150	80	7.0	1	59	45	71	55	12.0	10.99	65	1	5		
									2	76	56	60	44	10.0	11.34	54	5	1		
052 (5)	20	Kitkatla - N. of Gurd Pt.	21/03/84	0845		20	20	7.2	1	60	49	63	51	11.0	10.74	60	2	1		
									2	74	54	62	46	10.0	10.96	55	4	3		
033 (3)	21	Cunningham Pass	23/03/84	1540	300	150	0.15	7.5	1	79	45	96	55	0	0	3	2	91		18
033 (3)	22	Cunningham Pass	23/03/84	1730		100	0	-	-	Water haul										
033 (3)	23	Cunningham Pass	23/03/84	1845		150	100	7.5	1	75	52	68	48	10.0	10.50	58	4	6		
									2	75	48	81	52	10.5	10.12	66	3	12		
									3	69	47	77	53	12.5	11.86	66	8	3		
033 (3)	24	Port Simpson - Bennie I.	24/03/84	1015		15	10	7.4	1	79	44	101	56	0.5	0.45	6	-	95		20
042 (4)	25	Pearl Harbour	24/03/84	1455	150-200	75	75	7.6	1	81	51	78	49	9.0	9.16	58	7	13		
									2	69	45	83	55	10.0	9.16	68	9	6		
042 (4)	26	Off Big Bay	27/03/84	0520		100	15	6.8	1	76	44	96	56	0.5	0.45	8	24	64	5	
									2	67	39	104	61	0	-	3	25	76	11	
052 (5)	27[1]	Kitkatla	28/03/84	0915		75	75	7.4	1	67	51	64	49	10.5	10.74	62	2	-	1	
									2	66	51	63	49	10.5	10.76	62	-	1		
052 (5)	28[1]	Kitkatla	28/03/84	1250		40	5	7.6	1	66	54	56	46	10.5	11.44	56	-	-		
									2	52	44	66	56	14.0	12.52	66	-	-		
052 (5)	29[1]	Kitkatla	28/03/84	1600		40	40	7.7	1	62	50	61	50	11.5	11.59	60	-	1		
									2	79	59	55	41	10.0	12.20	55	-	-		
043 (4)	30	Hunts Inlet	01/04/84	1915	1000	100	100	8.3	1	62	42	84	58	13.0	11.30	81	3	-		
									2	75	47	85	53	12.0	11.30	78	5	2		
043 (4)	31	Hunts Inlet	03/04/84	0700	3000	50	50	7.9	1	86	55	69	45	9.5	10.67	68	-	1		

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "BOLD CONTENDER", STAT. AREAS 3 - 5, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
052 (5)	32	Willis Bay	03/04/84	1430	1000	150	150	7.9	1	68	56	54	44	11.5	12.98	52	-	2		
									2	62	44	80	56	13.0	11.55	79	-	1		
052 (5)	33	Willis Bay	04/04/84	1130	3000	60	25	7.6	1	71	45	87	55	11.75	10.66	80	2	5	3	
									2	79	51	75	49	10.0	10.27	65	4	6	2	
052 (5)	34	Freeman Pass	04/04/84	1450	500+	100	10	7.8	1	94	61	60	39	9.5	12.18	59	-	1		
									2	105	66	55	34	8.25	11.99	54	1	-	2	
052 (5)	35	N. of Shakes I.	05/04/84	1120		50	Insufficient catch for sample												41	

Seine Opening

Management sub-area 5-5 (Kitkatla) opened on March 21 for 1 hour and 45 minutes for a hailed catch of 1835 tons with roe yields from 10.4 to 12% (a few small catches were as low as 9.3%.

Gillnet Opening

Management sub-areas 4-5, 4-7 and 4-8 (Port Simpson) opened on March 26 for a hailed catch of 2,000 tons with roe yields up to 18%.

[1]Charter payment herring.

Table 10. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "BOLD CONTENDER", STAT. AREAS 3 - 5, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
052 (5)	1	Kitkatla Inlet	12/03/84	0700	1				2	2	6	7	21	5	5	1						49	19.2	18.0	20
033 (3)	2	Grassy Pt.	12/03/84	1755	-				Water haul													-	-	-	-
033 (3)	3	Grassy Pt.	13/03/84	0715	2						1	2	11	8	12	11	5					50	21.1	18.0	2
032 (3)	4	Steamer Pass	13/03/84	1430	3					6	5	7	10	16	1	2	2	1				50	19.5	18.0	22
032 (3)	5	Emma Pass	14/03/84	0610	-				Water haul													-	-	-	-
033 (3)	6	Grassy Pt.	15/03/84	0915	-				Water haul													-	-	-	-
032 (3)	7	Steamer Pass	15/03/84	1355	4			2	8	14	14	8	4									50	17.1	18.0	76
033 (3)	8	Birnie I.	15/03/84	1755	-				Water haul													-	-	-	-
033 (3)	9	Birnie I.	15/03/84	1840	5				4	4	13	9	4	4	8	3	1					50	18.9	18.0	42
033 (3)	10	Grassy Pt.	16/03/84	0810	6						1	3	4	7	13	17	4		1			50	21.5	18.0	2
033 (3)	11	Middle of Port Simpson Bay	16/03/84	1000	-				Water haul													-	-	-	-
033 (3)	12	Middle of Port Simpson Bay	16/03/84	1040	7						1	3	4	5	17	11	7	1				49	21.5	18.0	2
052 (5)	13	Kitkatla Gravel Pit	17/03/84	0910	8						2	6	5	8	12	12	2	3				50	21.1	18.0	4
052 (5)	14	Kitkatla	19/03/84	0655	9						1	3	9	3	10	13	10	1				50	21.5	18.0	2
052 (5)	15	Kitkatla	19/03/84	1020	10						3	5	6	10	10	8	5	3				50	21.1	18.0	6
052 (5)	16	Kitkatla - Snass Pt.	20/03/84	0730	11					1		6	6	5	12	11	8	1				50	21.3	18.0	2
052 (5)	17	Kitkatla	20/03/84	1100	-				Water haul													-	-	-	-

Table 10 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "BOLD CONTENDER", STAT. AREAS 3 - 5, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
052 (5)	18	Kitkatla - W. of Gurd I.	20/03/84	1220	12						2	8	12	6	9	12		2				51	20.6	18.0	4
052 (5)	19	Kitkatla	21/03/84	0730	13						1	10	8	9	12	8	1	1				50	20.6	18.0	2
052 (5)	20	Kitkatla - N. of Gurd Pt.	21/03/84	0845	14						2	6	7	9	17	4	5					50	20.8	18.0	4
033 (3)	21	Cunningham Pass	23/03/84	1540	15				2	10	15	8	8	3	3	1	1					51	18.3	18.0	53
033 (3)	22	Cunningham Pass	23/03/84	1730	-	Water haul																-	-	-	-
033 (3)	23	Cunningham Pass	23/03/84	1845	16					1	4	15	9	7	6	5	1		2			50	20.0	18.0	10
033 (3)	24	Port Simpson - Bennie I.	24/03/84	1015	17				1	11	9	13	9	4	2	1						50	18.4	18.0	42
042 (4)	25	Pearl Harbour	24/03/84	1455	18					1	6	12	13	5	8	5						50	19.7	18.0	14
042 (4)	26	Off Big Bay	27/03/84	0520	19					3	9	15	12	6		5	2					50	19.1	18.0	24
052 (5)	27	Kitkatla	28/03/84	0915	20						2	7	7	7	8	15	4					50	21.0	18.0	4
052 (5)	28	Kitkatla	28/03/84	1250	21					1		4	9	2	10	14	8	2				50	21.5	18.0	2
052 (5)	29	Kitkatla	28/03/84	1600	22						5	8	10	9	8	6	3	1				50	20.3	18.0	10
043 (4)	30	Hunts Inlet	01/04/84	1915	23						1	11	10	10	6	8	2	2				50	20.5	18.0	24
043 (4)	31	Hunts Inlet	03/04/84	0700	24					2	5	12	12	2	10	5	2					50	19.8	18.0	14
052 (5)	32	Willis Bay	03/04/84	1430	25					1	2	12	16	4	9	4	2					50	20.0	18.0	6

Table 10 (con'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "BOLD CONTENDER", STAT. AREAS 3 - 5, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
052 (5)	33	Willis Bay	04/04/84	1130	26					1	7	16	14	2	4	5	1					50	19.4	18.0	16
052 (5)	34	Freeman Pass	04/04/84	1450	27						5	8	13	4	10	5	4		1			50	20.4	18.0	10
052 (5)	35	N. of Shakes I.	05/04/84	1120	-	Insufficient catch for sample																-	-	-	-

Table 11. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	1	Hose Pt. (Seaforth Ch.)	01/03/84	1625	200+	150-200+		7.3	-	Water haul										
074 (7)	2	Boddy Passage	01/03/84	1900		3000	600+	7.0	1	34	36	61	64	0.0	-	-	1	60		
074 (7)	3	Stryker Bay	02/03/84	0443	300+	300+	40+	6.2	1	38	40	57	60	0.0	-	-	-	57		
085 (8)	4	Kwakshua Channel	02/03/84	1927	3000	2000	350+	6.6	1	83	54	72	46	0.0	-	-	1	71		2
072 (7)	5	Berry Inlet	03/03/84	1655	200+	50+	50+	7.4	1	64	56	51	44	0.0	-	-	3	48		
074 (7)	6	W. Waskesiu Passage	03/03/84	1910	1000+	1000+	25+	7.4	1	48	45	59	55	0.0	-	1	8	50		
074 (7)	7	E. Waskesiu Passage	03/03/84	2100	600-700+	600-700+	150+	7.4	1	53	50	54	50	0.0	-	1	2	51		
067 (6)	8	Kitasu Bay	04/03/84	1810		100	30+	7.5	1	33	33	66	67	0.0	-	1	2	63		
067 (6)	9	E. Higgins Passage	05/03/84	1605	600+	300+	250+	7.8	1	62	55	50	45	1.0	1.12	9	4	37		
									2	61	54	52	46	1.0	1.09	9	2	41		
074 (7)	10	Dundivan Inlet	05/03/84	2000	500+	500+	200+	7.8	1	46	45	56	55	0.0	-	-	2	54		
073 (7)	11	Gunboat Passage	06/03/84	1910	40-50	25+	25+	7.0	-	58	46	69	54	0.0	-	3	2	64		
074 (7)	12	Raymond Pass to Norman Morrison Bay	08/03/84	1810	100+	25+	20-25+	7.9	1	41	41	58	59	0.0	-	4	1	53		
074 (7)	13	Hose Pt.	08/03/84	1945	200+	150+	60	7.8	1	40	40	60	60	1.5	1.25	6	4	50		
074 (7)	14	W. Waskesiu Passage	09/03/84	2000	600+	200	15+	7.8	1	46	46	53	54	4.0	3.74	19	15	19		
									2	54	56	43	44	5.0	5.64	22	4	17		
074 (7)	15	W. Waskesiu Passage	10/03/84	0535						Water haul										
074 (7)	16	Raymond-Claire	10/03/84	2110	1300+	600+	200+	7.8	1	53	54	45	46	2.0	2.18	12	8	25		
									2	71	62	44	38	1.75	2.28	8	2	34		
									3	55	54	47	46	2.0	2.17	9	3	35		

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	17	Raymond Passage (W.Side)	11/03/84	0630				7.7	-	Water haul										
074 (7)	18	Dundivan Pt.	11/03/84	0750	1200+	300-400+	200+	7.9	1	49	52	45	48	6.0	6.26	20	3	22		
									2	44	48	47	52	6.0	5.81	21	5	21		
									3	45	48	49	52	6.2	5.95	22	3	24		
073 (7)	19	McLaughlin Bay	11/03/84	1230	250+/300	50+	8+	-	1	66	46	78	54	0	-	-	-	-		
074 (7)	20	Stryker Bay	11/03/84	1915	800-/1000+	200-/300+	150+	7.9	1	47	48	50	52	6.5	6.31	26	7	17		
									2	47	45	57	55	7.2	6.57	29	3	25		
									3	58	57	44	43	5.0	5.80	18	3	23		
071 (7)	21	Spiller-Foote Islet	12/03/84	1640	3500+	300+	200+	8.3	1	55	54	46	46	7.0	7.69	28	1	17		
									2	46	43	61	57	10.5	9.21	49	3	9		
									3	52	50	51	50	8.0	8.08	28	7	16		
074 (7)	22	Louise Channel	13/03/84	1435		200+	0	8.0	-	Water haul										
074 (7)	23	Mouth of Stryker Bay	13/03/84	1600	1000	300+	5	8.0	1	50	42	65	57	12.0	10.62	44	3	18		
									2	64	55	53	45	7.5	8.28	30	2	21		
									3	57	54	48	46	9.5	10.39	34	3	11		
074 (7)	24	W. Louise Channel	13/03/84	1700	300-/400	200	75+	8.0	1	35	41	51	59	10.0	8.43	35	4	12		
									2	59	58	43	42	7.5	8.89	28	-	15		
									3	49	48	53	52	10.8	10.38	40	-	13		
074 (7)	25	W. Waskesiu	13/03/84	1935	100+	25+	25+	8.0	1	50	51	49	49	13.9	14.04	45	-	4		
									2	48	46	56	54	13.5	12.55	45	1	10		
									3	49	49	50	51	11.8	11.68	41	-	9		
071 (7)	26	Neekas Inlet	15/03/84	1555			25-30+	8.2	1	58	53	52	47	12.8	13.53	46	5	1	6	
									2	43	39	66	61	16.0	13.20	60	2	4	2	
									3	62	55	51	45	12.25	13.58	42	2	7	3	
067 (6)	27	E. Higgins N. Shore	16/03/84	0615		40+	30+	-	1	59	53	52	47	10.0	10.68	45	1	6		
									2	48	45	58	55	12.25	11.20	51	2	5		
									3	67	60	45	40	10.0	12.44	44	1	-		
									4	64	56	50	44	11.2	12.76	47	1	2		
072 (7)	28	Walter Islet	17/03/84	1410				-	-	Water haul										

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
072 (7)	29	Mathieson Channel	18/03/84	0733	1500	100		-	1	47	51	46	49	12.0	12.12	44	-	2	11	
									2	47	46	55	54	15.0	13.91	52	-	3	9	
									3	38	42	53	58	15.0	12.89	50	-	3	18	
074 (7)	30	Stryker Bay	19/03/84	0533	500-600	300+	125+	-	1	54	50	53	50	14.0	14.14	52	-	1		
									2	77	57	59	43	10.5	12.10	49	3	7		
									3	72	58	53	42	13.0	15.33	51	-	2		
074 (7)	31	Head Thompson Bay	19/03/84	1415	600+	300+	80+	8.3	1	36	38	58	62	15.2	12.32	58	-	-		
									2	37	37	62	63	16.5	13.18	59	-	3		
									3	56	58	41	42	16.0	18.91	39	-	2	1	
074 (7)	32	Stryker Bay	20/03/84	0525	150-200	75+	40-50+	-	1	52	46	60	54	13.0	12.13	52	-	8		
									2	68	53	60	47	12.1	12.90	52	-	8		
									3	53	46	63	54	12.2	11.23	54	1	8		
074 (7)	33	E. Waskesiu	20/03/84	1300		400+	200+	7.9	1	31	3	50	62	12.0	9.72	48	-	2		
074 (7)	34[1]	E. Waskesiu	21/03/84	0530	600+	300+	80-90+	7.8	1	45	40	67	60	14.2	11.87	62	-	5		
									2	43	42	59	58	14.5	12.54	57	1	1		
									3	51	49	54	51	14.3	13.91	53	-	1	2	
067 (6)	35[1]	E. Higgins	23/03/84	0630		25	25	7.6	1	54	48	59	52	13.1	12.55	58	-	1		
									2	53	47	59	53	14.3	13.57	57	-	2		
									3	62	53	54	47	11.2	12.02	52	-	2		
074 (7)	36[1]	Fingal Point E.	23/03/84	1930		350-400	50+	8.1	1	63	51	61	49	13.5	13.72	61	-	-		
									2	70	52	65	48	12.5	12.99	65	-	-		
									3	70	55	58	45	11.5	12.69	56	-	2		

Seine Opening

Management sub-area 7-3 (east Higgans Pass) opened on March 16 for 4 hours and 10 minutes for a halled catch of 3,100 tons. The area was opened again on March 17 for 35 minutes for a catch of 810 tons; the overall seine catch was 3,900 tons with roe yields of 11-12%.

Gillnet Opening

Management sub-areas 6-18 (Kitasu Bay), 7-9 (Powell Anchorage-Cecilia Island-Reid Pass) and 7-19 (S.E. Princess Alice Island) opened on March 26 for 45 hours for a halled catch of 3,848 tons with roe yields of 13.5 - 15%.

[1]Charter payment herring.

Table 12. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	1	Hose Pt. (Seaforth Ch.)	01/03/84	1625	-	Water haul																-	-	-	-
074 (7)	2	Boddy Passage	01/03/84	1900	1					1	1	4	2	1	12	18	8	3				50	21.8	18.5	12
074 (7)	3	Stryker Bay	02/03/84	0443	2								2	6	9	23	8	2				50	22.2	18.5	0
085 (8)	4	Kwakshua Channel	02/03/84	1927	3				3	1	3	4	13	11	10	5						50	19.9	18.5	20
072 (7)	5	Berry Inlet	03/03/84	1655	4			1		2			1	7	17	12	7	2				49	21.6	18.5	6
074 (7)	6	W. Waskesiu Passage	03/03/84	1910	5						2	1	5	9	13	16	4					50	21.4	18.5	4
074 (7)	7	E. Waskesiu Passage	03/03/84	2100	6					1		2	4	1	11	19	12	1				51	22.0	18.5	4
067 (6)	8	Kitasu Bay	04/03/84	1810	7					1		1	5	6	19	9	3	2	3			49	21.7	18.5	2
067 (6)	9	E. Higgins Passage	05/03/84	1605	8					1	2	1	3	12	14	10	6	1				50	21.3	18.5	6
074 (7)	10	Dundivan Inlet	05/03/84	2000	9						1		3	4	7	22	11	1	1			50	22.2	18.5	2
073 (7)	11	Gunboat Passage	06/03/84	1910	10					1	1	5	13	9	12	7	2					50	20.5	18.5	6
074 (7)	12	Raymond Pass to Norman Morrison Bay	08/03/84	1810	11					1	2	1	5	9	11	15	5	2				51	21.4	18.5	6
074 (7)	13	Hose Pt.	08/03/84	1945	12				1		1	3	2	10	8	10	12	3				50	21.7	18.5	4
074 (7)	14	W. Waskesiu Passage	09/03/84	2000	13					1	2	2	1	4	11	8	18	3				50	22.1	18.5	6
074 (7)	15	W. Waskesiu Passage	10/03/84	0555	-	Water haul																-	-	-	-
074 (7)	16	Raymond - Claire	10/03/84	2110	14				1				4	6	10	18	9	5		1		54	22.2	18.5	2

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	17	Raymond Passage (W. Side)	11/03/84	0630	-				Water haul													-	-	-	-
074 (7)	18	Dundivan Pt.	11/03/84	0750	15				1		1			3	6	27	7	5				50	22.4	18.5	4
073 (7)	19	McLaughlin Bay	11/03/84	1230	16				2	1	8	4	10	13	7	3	1	1				50	19.8	18.5	26
074 (7)	20	Stryker Bay	11/03/84	1915	17				1	1	1		4	3	9	14	13	2		1		49	22.0	18.5	6
071 (7)	21	Spiller - Foot Islet	12/03/84	1640	18			1		1	1	3	2	2	11	19	7	2	1			50	21.7	18.5	8
074 (7)	22	Louise Channel	13/03/84	1435	-				Water haul													-	-	-	-
074 (7)	23	Mouth of Stryker Bay	13/03/84	1600	19			2		1	3	4	4	4	15	9	6	2				50	20.9	18.5	12
074 (7)	24	W. Louise Channel	13/03/84	1700	20						2		5	5	11	18	9					50	21.8	18.5	4
074 (7)	25	W. Waskesiu	13/03/84	1935	21				1			3	1	7	9	12	16	2				51	22.0	18.5	8
071 (7)	26	Neekas Inlet	15/03/84	1555	22					2	2	1	3	6	12	14	10					50	21.5	18.5	8
067 (6)	27	E. Higgins N. Shore	16/03/84	0615	23						2		1	2	18	19	7	2				51	22.0	18.5	4
072 (7)	28	Walter Islet	17/03/84	1410	-				Water haul													-	-	-	-
072 (7)	29	Mathieson Channel	18/03/84	0733	24						1		2	9	6	18	12	2				50	22.1	18.5	2
074 (7)	30	Stryker Bay	19/03/84	0533	25					1		3		5	11	14	11	6				51	22.2	18.5	4
074 (7)	31	Head Thompson Bay	19/03/84	1415	26					3	3		1	2	10	13	13	5				50	22.0	18.5	12
074 (7)	32	Stryker Bay	20/03/84	0525	27					5	1	4	4	4	11	10	10	2				51	21.2	18.5	16

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	33	E. Waskesiu	20/03/84	1300	28				1		4		3	2	7	12	19	1				49	22.0	18.5	10
074 (7)	34	E. Waskesiu	21/03/84	0530	29					2	5		5	3	7	17	11					50	21.4	18.5	14
067 (6)	35	E. Higgins	23/03/84	0630	30				1	1	3		5	4	13	20	3					50	21.3	18.5	10
074 (7)	36	Fingal Pt. E.	23/03/84	1930	31					1	2	1	1	7	10	16	12					50	21.8	18.5	8

Table 13. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 AND 7, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	1	Boddy Pass	07/03/84	0550	400+	200+	100+	7.4	1	65	62	39	38	0	-	-	3	36		
076 (7)	2	Spider Anchorage	07/03/84	1225		40+		7.8	-	No information										
067 (6)	3	Kitasu Bay	08/03/84	2030	3000	skimmer& flipper	200	7.8	1	59	56	46	44	5.0	5.71	22	6	18		
									2	62	54	53	46	4.5	4.88	20	11	22		
067 (6)	4	W. Higgins Pass	09/03/84	1125	400-500	250	140	8.0	1	58	59	40	41	5.5	6.74	19	6	15		
									2	51	53	46	47	5.5	5.80	23	9	14		
									3	65	61	41	39	6.0	7.75	24	6	11		
067 (6)	5	E. Higgins Pass	10/03/84	1230	400-500	75-80	-	7.7	-	Water haul										
071 (7)	6	Klemtu Pass	10/03/84	1640	600	300-350	75-80	7.8	1	85	60	57	40	-	-	-	6	51		4
067 (6)	7	E. Higgins Pass	11/03/84	0710	800-1000	300-350	200-250	7.5	1	64	59	44	41	5.5	6.76	23	8	13		
									2	62	55	50	45	7.0	7.85	35	6	9		
									3	56	49	59	51	8.0	7.80	36	4	19		
067 (6)	8	Kipp I.	12/03/84	1021	400-500	75-80	-	8.1	-	Water haul										
067 (6)	9	Kipp I.	12/03/84	1125	400/500	200	120	8.1	1	59	56	46	44	10.5	11.99	40	3	3		
									2	54	51	51	49	11.0	11.32	41	5	5		
									3	56	55	46	45	10.5	11.64	41	1	4		
067 (6)	10	Wilby Pt.	12/03/84	1555	800	200	80	8.2	1	48	48	51	52	9.5	9.22	37	7	7		
									2	56	50	56	50	5.5	5.50	27	3	26		
									3	71	59	50	41	4.0	4.84	15	4	31		
067 (6)	11	Parsons Anchorage	12/03/84	2030	2500	300	40	-	1	65	53	58	47	10.0	10.59	41	2	15		
									2	60	52	55	48	9.0	9.41	35	4	16		
									3	54	43	72	57	9.5	8.32	40	17	15		
067 (6)	12	E. Higgins Pass	15/03/84	0600	1500-2000	200	160	8.0	1	56	49	58	51	10.5	10.31	45	4	9		
									2	59	54	50	46	10.0	10.89	42	2	6		
									3	51	47	57	53	12.0	11.36	48	3	6		
067 (6)	13	E. Higgins Pass	15/03/84	1021	1500-2000	50	15	7.9	1	70	63	41	37	10.0	13.55	38	3	-		
									2	61	58	44	42	10.5	12.53	39	2	3		
									3	62	58	44	42	9.5	11.45	35	7	2		

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 AND 7, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
067 (6)	14	E. Higgins Pass	16/03/84	0641	1500-2000	150	90	7.9	1	62	51	59	49	12.0	12.30	52	2	5		
									2	53	48	58	52	13.0	12.43	54	3	1		
									3	62	52	58	48	11.0	11.39	48	2	8		
									4	67	59	47	41	10.0	12.14	40	3	4		
067 (6)	15	Kipp I.	18/03/84	1350	1000	65	25	-	1	55	50	54	50	13.0	13.13	51	1	2		
									2	44	42	62	58	14.0	11.97	59	-	3		
									3	59	54	50	46	11.0	11.98	45	4	1		
067 (6)	16	Parsons Anchorage	18/03/84	1624	350-400	25-30	25-30	8.0	1	57	46	68	54	14.5	13.33	64	2	2		
									2	54	44	70	56	13.5	11.95	58	6	6		
									3	66	54	56	46	13.0	14.16	52	3	1		
072 (7)	17	Bend Pt.	19/03/84	1044	1000-1500	400	200	7.9	1	43	44	55	56	15.0	13.37	54	-	1		
									2	46	46	53	54	15.0	14.02	52	-	1		2
									3	55	49	57	51	15.5	15.23	57	-	-		1
074 (7)	18[1]	Waskeslu Pass	20/03/84	0832	500-600	100	100(60)	7.9	1	54	51	51	49	14.0	14.40	49	1	1		
									2	49	47	55	53	15.0	14.18	54	1	-	1	
									3	63	60	42	40	13.5	16.88	41	1	-		
									4	55	49	57	51	15.0	14.73	55	2	-		
									Pump start	77	63	46	37	11.0	14.71	42	3	1		
									Pump mid	77	60	51	40	12.0	15.08	48	3	-		
									Pump end	60	55	49	45	12.0	13.33	45	3	1		
074 (7)	19[1]	W. Waskeslu Pass	20/03/84	1618	500-600	20	20	-	1	57	55	47	45	12.0	13.27	39	8	-		
									2	51	47	57	53	14.0	13.26	45	12	-	1	
									3	51	47	57	53	15.0	14.20	50	7	-		
075 (7)	20	Cultus Anchorage	21/03/84	1300	200	50	25	-	1	62	48	67	52	14.5	13.97	64	3	-	1	
									2	62	49	65	51	14.0	13.67	63	2	-		2
072 (7)	21	Powell Anchorage	23/03/84	1945	500-700	20	8-9	-	1	32	39	50	61	13.5	11.07	48	-	2	17	
									2	38	39	59	61	15.5	12.75	58	-	1	6	17
									3	45	44	57	56	14.5	12.97	56	-	1	8	17

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 AND 7, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
067 (6)	22	Kitasu Bay	25/03/84	2008	Heavy Skimmer		50-60	-	1	63	51	60	49	12.0	12.30	54	-	6		3
									2	62	54	52	46	10.5	11.51	46	3	3	3	
									3	56	50	57	50	12.5	12.40	54	1	2	1	
067 (6)	23	Kitasu Bay	26/03/84	0945	Wheelhouse and sample log missing									12.3	11.8					
067 (6)	24	E. Higgins	26/03/84	1540	700-800	75-80	40	-	1	68	56	54	44	12.0	13.54	51	-	3		
									2	66	52	61	48	12.7	13.28	55	1	5	2	
									3	60	49	62	51	13.5	13.29	59	1	2		
074 (7)	25	Dundivan Inlet	28/03/84	0600	250	50	25	7.9	1	35	38	58	62	14.5	11.62	53	2	3	5	
									2	47	48	51	52	14.0	13.46	49	1	1	2	1
									3	52	50	53	50	13.5	13.37	50	-	3	1	3
074 (7)	26	Boddy Pass	29/03/84	0910	350-400	75	40-45	8.1	1	66	62	41	38	13.5	17.62	41	-	-	1	1
									2	51	46	61	54	16.0	14.68	61	-	-	2	2
									3	69	55	57	45	14.5	16.04	56	-	1		1
074 (7)	27	Dundivan Inlet	30/03/84	1950		25+	-	-	1	58	50	57	50	14.0	14.11	56	1	-	1	
									2	68	54	57	46	13.8	15.13	57	-	-	3	2
067 (6)	GN	Weeteeam Bay	11/03/84	1400			3 buckets	8.3	1	49	49	51	51	11.0	10.78	49	2	-	2	
									2	60	60	40	40	9.0	11.25	36	4	-	3	1
									3	56	60	37	40	9.0	11.31	34	2	1	2	1
067 (6)	GN	Inside Meade Pt.	11/03/84	1500	-	-	-	-	1	38	44	48	56	9.5	8.51	48	-	-	40	
									2	39	61	25	39	6.5	8.31	24	1	-	28	
									3	37	45	46	55	9.0	8.12	43	2	1	24	
067 (6)	GN	Archer Island W.	11/03/84	1635	-	-	-	-	1	47	45	58	55	8.5	7.70	35	13	10		
									2	48	47	54	53	7.0	6.62	29	14	11		
									3	43	36	75	64	10.5	8.25	45	26	4		
067 OSPREY (6)		Aldrich Pt.	16/03/84	-	-	-	-	8.0	1	64	63	38	37	9.0	12.06	34	3	1		
									2	58	57	44	43	10.0	11.60	39	1	4		
067 WESTERN (6)BRAVE		Higgins Pass	16/03/84	-	-	-	-	8.0	1	60	49	62	51	12.5	12.30	52	2	8	1	
									2	65	56	52	44	11.0	12.39	47	4	1		1
067 FIDULER (6)		Higgins Pass	16/03/84	-	-	-	-	8.0	1	48	44	62	56	14.0	12.41	57	2	3		
067 WESTERN (6)OCEAN		Higgins Pass	16/03/84	-	-	-	-	8.0	1	51	44	66	56	14.0	12.41	59	3	4		

Information on fishery (Table 11). [1]Charter payment herring.

Table 14. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 AND 7, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	1	Boddy Pass	07/03/84	0550	1							5	2	5	10	17	8	2				49	21.8	18.5	6
076 (7)	2	Spider Anchorage	07/03/84	1225	-							3		1				1	1			6	21.0	18.5	33
067 (6)	3	Kitasu Bay	08/03/84	2030	2							1	3	6	21	14	4	1				50	21.7	18.5	0
067 (6)	4	W. Higgins Pass	09/03/84	1125	3							1		1	21	21	5		1			50	27.1	18.5	2
067 (6)	5	E. Higgins Pass	10/03/84	1230	-							Water haul										-	-	-	-
071 (7)	6	Klemtu Pass	10/03/84	1640	4	1	1		5	1	5	5	8	11	11	1		1				50	19.3	18.5	32
067 (6)	7	E. Higgins Pass	11/03/84	0710	5					1			2	7	17	14	8	1				50	21.8	18.5	2
067 (6)	8	Kipp I.	12/03/84	1021	-							Water haul										-	-	-	-
067 (6)	9	Kipp I.	12/03/84	1125	6						2	2	1	5	18	17	5					50	21.6	18.5	4
067 (6)	10	Wilby Pt.	12/03/84	1555	7						2	1	5	7	14	13	4	4				50	21.6	18.5	6
067 (6)	11	Parsons Anchorage	12/03/84	2030	8					1	4	2	6	6	14	13	5					51	21.1	18.5	10
067 (6)	12	E. Higgins Pass	15/03/84	0600	9					1	1	3	2	7	16	13	6	1				50	21.5	18.5	6
067 (6)	13	E. Higgins Pass	15/03/84	1021	10					2	1		3	4	15	16	7	2				50	21.7	18.5	6
067 (6)	14	E. Higgins Pass	16/03/84	0641	11					1			1	5	20	18	5					50	21.8	18.5	2
067 (6)	15	Kipp I.	18/03/84	1350	12					2			1	6	18	16	5	1				50	21.6	18.5	6
067 (6)	16	Parsons Anchorage	18/03/84	1624	13				1	2	1	1	2	5	19	16	3					50	21.3	18.5	10

Table 14 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 AND 7, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
072 (7)	17	Bend Pt.	19/03/84	1044	14				2	1	3		3	5	11	14	7	3	1			50	21.5	18.5	12
074 (7)	18	Waskesiu Pass	20/03/84	0832	15					2		2	4	9	5	13	11	3	1			50	21.8	18.5	6
074 (7)	19	W. Waskesiu Pass	20/03/84	1618	16				1	8	7	2	3	4	8	9	7	1				50	20.2	18.5	34
075 (7)	20	Cultus Anchorage	21/03/84	1300	17				2	3	7	1	6	8	11	7	3	1				49	20.2	18.5	27
072 (7)	21	Powell Anchorage	23/03/84	1945	18					4	5	4	2	8	9	10	7					49	20.7	18.5	20
067 (6)	22	Kitasu Bay	25/03/84	2008	19					2	4	4	2	6	17	11	3	1				50	20.9	18.5	16
067 (6)	23	Kitasu Bay	26/03/84	0945	20	No information																			
067 (6)	24	E. Higgins	26/03/84	1540	21				1	4	4	6	2	5	9	14	5					50	20.6	18.5	24
074 (7)	25	Dundivan Inlet	28/03/84	0600	22					1	2	2	2	4	7	17	12	3				50	22.0	18.5	8
074 (7)	26	Boddy Pass	29/03/84	0910	23				3	5	5	1	5	4	6	14	6	1				50	20.5	18.5	26
074 (7)	27	Dundivan Inlet	30/03/84	1950	24				1	3	3	4	7	8	10	11	2	1				50	20.5	18.5	20
067 (6)	GN	Weeteam Bay	11/03/84	1400	-									1	8	30	7	4				50	22.6	18.5	0
067 (6)	GN	Inside Meade Pt.	11/03/84	1500	-										7	21	18	2	1			49	22.9	18.5	0
067 (6)	GN	Archer Islets W.	11/03/84	1635	-									1	10	28	7	4	1			51	22.6	18.5	0
067 (6)	OSPREY	Aldrich Pt.	16/03/84	-	-							2	1	8	20	12	6	1				50	21.7	18.5	4
067 (7)	WESTERN BRAVE	Higgins Pass	16/03/84	-	-						1	4	2	6	13	8	6					40	21.4	18.5	5

Table 14 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 AND 7, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
067 (6)	FIDDLER	Higgins Pass	16/03/84	-	-				1	1	1	1	2	13	17	14						50	21.1	18.5	6
067 (6)	WESTERN OCEAN	Higgins Pass	16/03/84	-	-				1	1	1	2	2	13	25	5						50	20.8	18.5	10

Table 15. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW I", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
162 (16)	1	Westview B.W.	20/02/84	2015	800	250	200	7.6	1	47	47	54	53	0	-	-	2	52	2	4
									2	36	38	58	62	0	-	-	1	57	2	
152 (15)	2	Hurtado Pt.	21/02/84	0600	500	80	70	7.8	1	28	29	68	71	0	-	-	3	65		
									2	40	43	53	57	0	-	-	-	53		
162 (16)	3	1 mi SE. of Westview	21/02/84	1515	500	60	1.5	7.8	1	42	43	56	57	0.1	0.09	1	-	55		1
									2	48	48	51	52	0.1	0.10	1	3	47		
152 (15)	4	Dinner Rock	22/02/84	0530	1000	100	0	7.4	-	Water haul										
152 (15)	5	1/3 mi SE. Powell River	22/02/84	1705	3000+	300	80	7.6	1	40	40	59	60	2.3	1.93	8	4	47	2	
									2	45	44	58	56	1.1	0.98	3	2	53	3	
162 (16)	6	Westview Ferry Dock	23/02/84	0550	3000+	500	45	7.5	1	40	42	55	58	1.6	1.38	9	5	41		
									2	42	46	49	54	1.8	1.67	8	4	37		
162 (16)	7	1/2 mi E. Grief Pt.	23/02/84	1055	5000+	300	0	-	-	Water haul										
162 (16)	8	1/2 mi E. Grief Pt.	23/02/84	1210	5000+	30-50	35	7.5	1	47	44	61	56	1.9	1.68	8	-	53		
									2	35	32	73	68	1.77	1.31	9	1	63		
152 (15)	9	1/2 mi E. Hurtado Pt.	23/02/84	1900	2000	700	100	6.9	1	52	51	50	49	0.65	0.66	3	1	46		
									2	42	44	53	56	0.4	0.36	2	7	44		
152 (15)	10	1/4 mi E. Hurtado Pt.	24/02/84	0610	2000	300-400	40	7.6	1	37	40	56	60	0.3	0.25	1	2	53		
									2	38	44	49	56	0	-	-	1	48		
152 (15)	11	1 mi S. Powell River	24/02/84	1355		30	0	7.6	-	Water haul										
162 (16)	12	Westview Ferry Dock	24/02/84	1450	5000	40	10	7.6	1	52	42	72	58	1.70	1.46	9	1	62		
									2	41	33	84	67	0.75	0.56	5	5	74		
152 (15)	13	Dinner Rock	25/02/84	0615	2000	200	0.3	7.6	1	41	43	55	57	0.57	0.50	2	3	50		36
									2	34	33	69	67	0.8	0.60	3	2	64		20
162 (16)	14	3/4 mi SE. Westview Gov. Wharf	25/02/84	1610	5000	200	0	8.0	-	Water haul										
162 (16)	15	3/4 mi SE. Westview Ferry Wharf	25/02/84	1715	5000	200	150	8.0	1	45	46	52	54	4.54	4.24	19	8	25		
									2	37	40	56	60	4.5	3.74	18	8	30		
									3	44	44	56	56	5.3	4.73	19	15	22		
									4	40	40	59	60	4.2	3.52	18	14	27		

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW I", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
152 (15)	16	1 mi W. Dinner Rock	26/02/84	0605	2000	200	5	7.3	1	41	43	55	57	1.87	1.63	8	5	42		2
									2	45	47	50	53	2.47	2.35	8	5	37		
162 (16)	17	1/2 mi SW. Westview Ferry Dock	26/02/84	1630	5000	75	0	7.3	-	Water haul										
162 (16)	18	1/2 mi SW. Westview	26/02/84	1815	5000	100	5	7.6	1	55	49	58	51	2.37	2.31	13	12	33		
									2	52	49	54	51	2.9	2.85	17	8	29		
152 (15)	19	1/4 mi SE. Powell River	26/02/84	2035	5000	200	50	7.5	1	56	44	71	56	4.32	3.86	25	7	39		
									2	59	48	65	52	3.0	2.86	16	4	45		
152 (15)	20	1/2 mi Ferry Dock	27/02/84	1235	5000	400	0	7.7	-	Water haul										
152 (15)	21	3/4 mi SE. Powell River Hulks	27/02/84	1340	5000	300	50	7.6	1	52	46	62	54	5.0	4.60	22	7	33		
									2	65	56	51	44	3.5	3.98	17	4	30		
									3	58	48	62	52	4.1	3.97	20	5	37		
152 (15)	22	1/4 mi Powell River Mill	27/02/84	1655	7000+	200	100	6.9	1	40	44	51	56	6.9	6.16	26	1	24		
									2	45	46	53	54	5.98	5.53	25	5	23		
									3	33	37	56	63	6.57	5.22	25	8	23		
152 (15)	23	1/4 mi NW. Atrevida Reef	28/02/84	0630	800	200	500	7.3	1	26	25	79	75	2.07	1.38	9	6	64		
									2	27	27	75	73	1.18	0.80	6	8	61		
162 (16)	24	Myrtle Pt.	28/02/84	1430	7000-10000	350	75	7.7	1	53	50	52	50	7.27	7.34	31	5	16		
									2	46	48	49	52	6.94	6.72	29	7	13		
									3	58	57	44	43	5.70	6.61	27	4	13		
162 (16)	25	NW. Ent. Frolander Bay	28/02/84	1725	10,000	400	15	7.7	1	41	43	54	57	8.33	7.33	38	5	11		
									2	41	46	48	54	6.8	6.31	29	9	10		
									3	53	52	48	48	6.43	6.77	29	7	12		
162 (16)	26	3/4 mi SE. Ferry Dock	29/02/84	1315	3500	150	75	7.7	1	56	50	56	50	6.2	6.20	31	3	22		
									2	47	42	65	58	6.03	5.20	26	2	37		
									3	51	40	75	60	5.33	4.47	25	8	42		
162 (16)	27	Thunder Bay	29/02/84	1750	3-5000	300	5	7.5	1	39	36	68	64	7.28	5.72	34	6	28		
									2	37	35	70	65	7.65	5.85	37	9	24		
									3	46	43	61	57	7.28	6.39	33	8	20		
162 (16)	28	Hulks	01/03/84	0530	3000+	1000	200	7.6	1	43	47	48	53	9.33	8.85	32	3	15		
									2	34	36	61	64	9.48	7.38	37	7	17		
									3	53	50	52	50	6.72	6.79	29	3	20		
									4	53	52	48	48	6.43	6.77	27	5	16		

Table 19. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SARAH MARGARET", STAT. AREA 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or immat.
173 (17)	1	Between Shingle Pt. & Porlier Pass	20/02/84	2230		30-40	30-40	8.0	1	90	58	65	42	-	-	-	-	65		3
171 (17)	2	Secretary I.	21/02/84	0620	300	20-25	10-15	8.3	1	101	62	61	38	-	-	-	-	61		12
173 (17)	3	Abeam Pylades I.	22/02/84	1845	1500+	>100+	80+	7.8	1	87	55	72	45	-	-	-	1	71		2
173 (17)	4	Cardale Pt.	22/02/84	2120	3500	200	150	7.8	1	46	48	49	52	-	-	-	-	49		
171 (17)	5	Between Hall I. & Pile Bay	24/02/84	1930	100	35	30	7.6	1	92	58	68	42	-	-	-	15	53		
171 (17)	6	Porlier Pass	24/02/84	2145	8000	150	40	7.6	1	63	48	69	52	-	-	1	25	43		
171 (17)	7	Porlier Pass	25/02/84	1940	8000	200	140	7.6	1	72	59	51	41	-	-	5	30	16		
									2	63	54	54	46	0.66	0.71	5	31	18		
171 (17)	8	Porlier Pass (Reid I.)	26/02/84	0915		20		7.7	-	Water haul										
171 (17)	9	Porlier Pass	26/02/84	0900		150	125	7.7	1	62	57	47	43	-	-	1	26	20		
173 (17)	10	W. Blackberry Pt.	27/02/84	0510	10,000	275	200	7.7	1	33	48	36	52	-	-	2	20	14		
173 (17)	11	Pylades Channel	27/02/84	1910	1000	100	60-70	7.8	1	29	39	46	61	-	-	5	23	18		
									2	39	49	40	51	1	0.99	6	19	15		
									3	36	49	38	51	0	-	-	6	32		
173 (17)	12	Reid I.	28/02/84	0610					-	Water haul										
173 (17)	13	Pylades Channel	28/02/84	1830		85	25	7.9	1	50	59	35	41	0.87	1.06	3	7	25		
									2	60	65	33	35	0.0	-	-	7	26		
173 (17)	14	Pylades Channel (Ruxton Pass)	28/02/84	2000	11,000-12,000	300	150	7.9	1	35	49	36	51	1.13	1.11	4	6	26		
									2	42	56	33	44	1.4	1.59	5	1	27		
172 (17)	15	Nanoose Bay	29/02/84	1900	1,000-10,000	50	5	8.2	1	61	48	65	52	1.22	1.18	9	4	52		2
									2	74	58	53	42	1.0	1.20	7	6	40		5
172 (17)	16	Nanoose Bay	01/03/84	0445	8,000-10,000	150	100	8.1	1	67	60	44	40	2.5	3.16	13	12	19		
									2	61	58	45	42	3.8	4.47	20	7	18		
									3	67	59	46	41	1.4	1.72	7	21	18		

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW I", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or immat.
152 (15)	29	1 mi E. Harwood I.	01/03/84	0830	3000	500	0	7.6	-	Water haul										
152 (15)	30	3/4 mi E. Harwood I.	01/03/84	1005	3000-5000	500	0	7.3	-	Water haul										
152 (15)	31	NW. Powell River Mouth	01/03/84	1713	3000-5000	100	0	7.3	-	Water haul										
162 (16)	32	NW of Hulks	02/03/84	0900	3000-5000	800	30	7.4	1	51	54	44	46	7.95	8.59	31	2	11		
									2	34	37	57	63	11.5	9.19	46	3	8		
									3	44	48	45	51	9.17	9.06	34	4	7		
									4	43	48	47	52	8.33	7.98	32	7	8		
									5	36	39	57	61	9.29	7.58	38	8	11		
152 (15)	33	Between Powell River & Sliammon	02/03/84	0720	100-1500	800	100+	7.4	1	38	44	48	56	11.30	10.13	40	3	5		
									2	52	60	35	40	8.9	11.07	33	1	1		
									3	36	45	44	55	11.9	10.82	40	1	3		
									4	43	53	38	47	10.5	11.19	36	-	2		
									5	39	46	45	54	10.6	9.89	40	-	5		
162 (16)	34	NW. end of Hulks	02/03/84	1605		450	125	7.4	1	50	42	68	58	6.89	5.98	33	10	25		
									2	52	46	61	54	5.77	5.34	29	6	26		
152 (15)	35	Off beach Sliammon	03/03/84	0540	500-1000	75	8	7.4	1	49	42	69	58	4.00	3.42	22	11	36		
									2	50	42	68	58	3.60	3.13	21	13	34		
									3	51	44	66	56	3.55	3.15	21	22	23		
152 (15)	36	Hurtado Pt.	03/03/84	0910	100		Wheelhouse and sample log missing													
152 (15)	37	SW. Sliammon Beach	03/03/84	1155	2000-3000	700	150	7.3	1	51	48	56	52	8.48	8.11	41	3	12		
									2	64	58	47	42	6.12	7.23	27	7	13		
									3	55	50	55	50	8.38	8.38	39	9	7		
152 (15)	38	SE. Atrevida Reef	03/03/84	1435	2000-3000	400	-	7.4	-	Water haul										
152 (15)	39	SE. Atrevida Reef	03/03/84	1525	2000-3000	1000	250	7.4	1	41	45	50	55	10.68	9.73	41	3	6		
									2	44	47	50	53	9.28	8.72	38	2	10		
									3	46	50	46	50	9.20	9.20	38	7	1		
									4	46	46	53	54	9.42	8.80	40	7	6		

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SARAH MARGARET", STAT. AREA 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or immat.
173 (17)	17	Ruxton Pass	01/03/84	1920	500	200	100	7.9	1	68	65	36	35	1.56	2.25	8	9	19		
									2	76	70	33	30	1.18	1.95	4	12	17		
173 (17)	18	Pylades I.	01/03/84	2125	200	100	70	7.9	1	48	53	43	47	3.72	3.93	16	16	11		
									2	54	57	41	43	4.6	5.32	18	9	14		
									3	61	67	30	33	2.6	3.94	10	10	10		
172 (17)	19	Maude I.	02/03/84	2000		30	20	7.8	1	51	52	48	48	4.85	5.00	23	3	22	1	
									2	44	46	52	54	6.55	6.04	27	3	22		
									3	67	56	53	44	4.3	4.86	22	7	24		
172 (17)	20	Nanoose Habour	02/03/84	2200	8,000- 10,000	200	150- 200	7.8	1	47	50	47	50	8.7	8.70	37	2	8		
									2	35	47	39	53	9.55	9.06	30	3	6		
									3	51	55	42	45	7.2	7.96	29	4	9		
172 (17)	21	Nanoose Harbour	03/03/84	0445	8,000- 10,000	100	100	7.8	1	58	55	48	45	5.0	5.52	30	3	15		
									2	74	63	43	37	4.1	5.57	23	5	15		
172 (17)	22	Nanoose Bay	03/03/84	0100	-	-	-	-	-	Water haul										
173 (17)	23	Stuart Channel	03/03/84	2130	1500	100	75	8.0	1	41	48	44	52	9.0	8.69	29	1	14		
									2	46	51	44	49	8.55	8.74	30	2	12		
									3	43	50	43	50	8.45	8.45	30	7	6	1	2
173 (17)	24	Gabriola Pass	04/03/84	0500	1500	40	20	8.0	1	45	53	40	47	8.45	8.97	22	5	13		
									2	44	51	42	49	5.63	5.77	20	11	11		
									3	47	53	42	47	5.92	6.27	19	6	17		
173 (17)	25	Ruxton Pass	04/03/84	0630	1500- 2000	150	75	8.1	1	49	60	33	40	6.97	8.67	21	5	7		
									2	51	57	38	43	7.65	8.96	28	2	8		
									3	41	48	45	52	9.1	8.70	25	7	13		
173 (17)	26	Stuart Channel (W. Ruxton I.)	04/03/84	2000	5000+	200	150	8.0	1	29	37	49	63	13.2	10.51	35	6	8		
									2	43	57	33	43	9.95	11.46	26	2	5		
									3	37	49	39	51	9.6	9.36	26	6	7		
173 (17)	27	Stuart Channel	05/03/84	1900				8.3	1	50	56	40	44	9.25	10.42	31	1	8		
									2	51	50	52	50	8.75	8.66	33	1	18		
173 (17)	28[1]	Stuart/DeCourcy	06/03/84	2000	3000- 5000	200	100	8.1	1	33	45	41	55	13.6	12.27	39	1	1		
		Test #1 & #2 - sample taken at the start of pumping							2	42	55	35	45	11.0	12.09	32	1	2		
		Test #3 - sample taken at the mid point of pumping							3	40	49	42	51	12.5	12.21	40	-	2		
		Test #4 - sample taken at the end of pumping							4	42	49	43	51	11.5	11.36	36	1	6		

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW I", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or immat.
152 (15)	40	3/4 mi S. of Sliammon	04/03/84	0700	4000+	800	30-40	7.0	1	38	39	60	61	12.00	9.80	51	5	4		
									2	39	41	56	59	12.07	10.25	46	8	2		
									3	56	61	36	39	8.42	10.77	32	3	1		
									4	41	48	44	52	10.50	10.14	41	1	2		
									5	42	47	47	53	10.17	9.63	42	4	1		
152 (15)	41	Between Harwood Pt. and Scuttle Pt.	05/03/84	0730	4000- 5000	800+	40	7.3	1	54	51	51	49	8.54	8.79	38	7	6		
									2	56	54	47	46	8.64	9.47	39	5	3		
									3	58	54	50	46	8.37	9.04	40	7	3		
152 (15)	42	W. Harwood Spit	05/03/84	1100	2000	250	10	7.4	1	48	52	42	48	10.18	10.67	40	2	-		
									2	46	55	38	45	10.69	11.83	38	-	-		
									3	38	46	44	54	10.17	9.47	40	-	4		
142 (14)	43	Deep Bay	05/03/84	1905	1000	125	50	7.8	1	59	61	37	39	7.62	9.90	29	3	5		
									2	40	48	44	52	11.50	10.97	38	-	6		
									3	42	44	53	56	10.67	9.56	46	2	5		
173 (17)	44	Stuart Channel	06/03/84	1910	15,000	500	110	7.9	1	51	55	41	45	9.94	11.14	37	-	4		
									2	42	51	40	49	11.0	11.27	36	1	3		
									3	46	50	46	50	10.33	10.33	34	2	10		
173 (17)	45[1]	Stuart Channel	07/03/84	0134		500	60	7.8	1	52	56	41	44	11.55	13.10	37	-	4		
									2	49	53	43	47	10.47	11.21	38	-	5		
172 (17)	46[1]	E. Maude I.	08/03/84	0910	3000	450	350	7.6	1	64	54	54	46	9.55	10.43	48	3	3		
									2	59	50	59	50	10.71	10.71	54	1	4		
									3	87	67	43	33	7.12	10.76	38	-	5		1
172 (17)	47	Nanoose Harbour	08/03/84	1305	2000	75	30-40	8.3	1	44	56	35	44	10.48	11.83	35	-	-		
									2	57	65	31	35	9.16	13.01	29	2	-		
									3	42	54	36	46	10.5	11.36	36	-	-		
183 (18)	48	1/4 mi E. Fane I.	10/03/84	1850	1300- 2000	Skim	10	7.9	1	65	56	51	44	2.5	2.84	15	5	31		1
									2	57	45	70	55	4.0	3.63	23	4	43		
	49	No set information, released catch; small juveniles																		
183 (18)	50	1/4 mi SE. Edith Pt.	12/03/84	0535	1200+	400	5	7.6	1	57	45	71	55	9.6	8.65	53	9	9		1
									2	53	45	64	55	9.5	8.68	50	5	9		6
171 (17)	51	Parker I.	12/03/84	1900	2000- 3000		10	7.6	1	25	76	8	24	-	-	-	-	8		160

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW I", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
171 (17)	52	Porlier Pass	13/03/84	0605				7.7	1	52	46	61	54	-	-	20	6	35		32
171 (17)	53	Porlier Pass	13/03/84	0635	800-1000			7.8	1	39	57	30	43	-	-	1	-	29		28
									2	37	47	41	53	-	-	-	-	41		22
171 (17)	54	Porlier Pass	14/03/84	0635		1		7.8	1	63	62	38	38	-	-	38	-	-		
									2	51	52	48	48	-	-	47	-	1		
									3	53	51	50	49	-	-	49	1	-		
173 (17)	55	S. Side Hudson I.	20/03/84	1600	400-500	50	25	8.5	1	3	43	4	57	-	-	1	-	3	140	
173 (17)	56	3/4 mi SW. DeCourcy I.	21/03/84	0530	4/500	40-50	10	8.3	1	36	44	45	56	9.47	8.52	44	1	-	17	
173 (17)	Atlin Post	Pylades Channel	21/03/84	1600				-	1	35	38	57	62	13.0	10.48	55	-	2	5	
171 (17)	57	N. Galiano Dock	21/03/84	1810	1500	25	112	8.3	1	5	45	6	55	-	-	3	-	3	110	
171 (17)	58	Wise I.	22/03/84	0620	1000	10	10	8.1	1	-	-	1				-	-	1	108	
181 (18)	59	Hawkins I.	22/03/84	1410	7000-8000	40	0.15	8.3	1	26	50	26	50	-	-	-	-	26	6	
183 (18)	60	1/2 mi E. Mayne I.	22/03/84	1900	500+	Light skimmer	5	8.1	1	-	-	3				-	-	3	118	
181 (18)	61	Collison Pt.	23/03/84	0815	1000+	10	3	8.1	1	22	43	29	57	-	-	-	-	29	8	

Seine Opening

Management sub-area 15-2 (Powell River) opened on March 2 for 1 hour and 46 minutes for a hailed catch of 650 tons. The area was opened again on March 4 for 4 hours and 28 minutes for a catch of 3,788 tons; the overall catch was 3,788 tons with roe yields over 10%.

Gillnet Opening

The area from Cape Lazo to Neck Point was opened on March 9 for 54 hours and 30 minutes for a hailed catch of 6000 tons. Sub-area 14-10 was opened on March 11 for 5 hours for 2,325 tons; the overall catch was 8,325 tons with an estimated roe yield of 10-12%.

[1]Charter payment herring.

Table 16. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
162 (16)	1	Westview B.W.	20/02/84	2015	1	1			1	3	5	8	7	12	5	3		1				46	19.5 (4 juv)	19.0	39
152 (15)	2	Hurtado Pt.	21/02/84	0600	2					2	9	8	15	11	4	1						50	19.3	19.0	38
162 (16)	3	1 mi SE. of Westview	21/02/84	1515	3					2	2	10	12	9	9	4	2					50	20.0	19.0	28
152 (15)	4	Dinner Rock	22/02/84	0530	-	Water haul																-	-	-	-
152 (15)	5	1/3 mi SE. Powell River	22/02/84	1705	4					3	1	13	11	11	4	4	2	1				50	19.9	19.0	34
162 (16)	6	Westview Ferry Dock	23/02/84	0550	5				1	2	5	11	13	8	8	2						50	19.5	19.0	38
162 (16)	7	1/2 mi E. Grief Point	23/02/84	1055	-	Water haul																-	-	-	-
162 (16)	8	1/2 mi E. Grief Point	23/02/84	1210	6				2	2	5	17	10	11	2	1						50	19.0	19.0	52
152 (15)	9	1/2 mi E. Hurtado Point	23/02/84	1900	7				1	1	2	4	14	11	10	7						50	20.2	19.0	16
152 (15)	10	1/4 mi E. Hurtado Point	24/02/84	0610	8					1	1	5	11	10	12	7	4					51	20.7	19.0	14
162 (16)	11	1 mi S. Powell River	24/02/84	1355	-	Water haul																-	-	-	-
162 (16)	12	Westview Ferry Dock	24/02/84	1450	9				2	3	10	12	15	4	2	2						50	18.8	19.0	54
152 (15)	13	Dinner Rock	25/02/84	0615	10				1	3	3	3	10	12	3	2	2					39	19.8 (11 juv)	19.0	26
162 (16)	14	3/4 mi SE. Westview Gov. Wharf	25/02/84	1610	-	Water haul																-	-	-	-
162 (16)	15	3/4 mi SE. Westview Gov. Wharf	25/02/84	1715	11			1	1	1	4	3	13	11	12	3	1					50	20.0	19.0	20
152 (15)	16	1 mi W. Dinner Rock	26/02/84	0605	12					2	6	6	15	7	9	2	2					49	19.8	19.0	29
162 (16)	17	1/2 mi SW. Westview Ferry Dock	26/02/84	1630	-	Water haul																-	-	-	-

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
162 (16)	18	1/2 mi off Westview	26/02/84	1815	13					3	7	18	11	6	4		1					50	19.0	19.0	56
162 (16)	19	1/4 mi SE. Powell River	26/02/84	2035	14				2	3	6	16	15	8	3							53	18.9	19.0	51
162 (16)	20	1/2 mi Ferry Dock	27/02/84	1235	-				Water haul													-	-	-	-
152 (15)	21	3/4 mi SE. Powell River Hulks	27/02/84	1340	15					1	4	8	9	16	7	4	1					50	20.0	19.0	26
152 (15)	22	1/4 mi NW. Powell River Mill	27/02/82	1655	16			1		1	2	10	8	10	8	4	2	2				48	20.2	19.0	29
152 (15)	23	1/4 mi NW. Atrevida Reef	28/02/84	0630	17					2	3	6	17	17	4	1						50	19.7	19.0	22
162 (16)	24	Myrtle Pt.	28/02/84	1430	18						1	15	11	10	9	4						50	20.0	19.0	32
162 (16)	25	NW. Ent. Frolander Bay	28/02/84	1725	19							11	16	10	10	2	1					50	20.1	19.0	22
162 (16)	26	3/4 mi SE. Ferry Dock	29/02/84	1315	20				2	3	5	16	10	7	3	2						48	19.0	19.0	54
162 (16)	27	Thunder Bay	29/02/84	1750	21				1		7	15	11	6	8	2						50	19.4	19.0	20
162 (16)	28	Hulks	01/03/84	0530	22			1			3	6	6	7	13	14						50	20.7	19.0	20
152 (15)	29	1 mi E. Harwood I.	01/03/84	0830	-				Water haul													-	-	-	-
152 (15)	30	3/4 mi E. Harwood I.	01/03/84	1005	-				Water haul													-	-	-	-
152 (15)	31	NW. Powell River Mouth	01/03/84	1713	-				Water haul													-	-	-	-
162 (16)	32	NW. of Hulks	02/03/84	0500	23				1	1	3	7	12	13	13	1						51	19.9	19.0	24
152 (15)	33	Between Powell River + Sliammon	02/03/84	0720	24						2	2	7	14	12	7	3	2	1			50	21.1	19.0	8

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
152 (15)	34	NW. end of Hulks	02/03/84	1605	25				2		4	16	12	11	5							50	19.3	19.0	44
152 (15)	35	Off beach Sliammon	03/03/84	0540	26				1	4	6	12	14	10	2	1						50	19.0	19.0	46
152 (15)	36	Hurtado Pt.	03/03/84	0910		Wheelhouse and sample log missing																			
152 (15)	37	SW. Sliammon Beach	03/03/84	1155	27					2	5	11	15	8	5	2	2					50	19.6	19.0	36
152 (15)	38	SE. Atrevida Reef	03/03/84	1435	-	Water haul																-	-	-	-
152 (15)	39	SE. Atrevida Reef	03/03/84	1525	28						1	7	9	13	12	4	4					50	20.6	19.0	16
152 (15)	40	3/4 mi S. of Sliammon	04/03/84	0700	29					1	3	9	8	15	11	3						50	20.1	19.0	26
152 (15)	41	Between Harwood Pt. + Scuttle Pt.	05/03/84	0730	30				1		6	12	10	8	11	3						51	19.7	19.0	37
152 (15)	42	W. Harwood Spit	05/03/84	1100	31					1	1	5	15	13	11	1	2	1				50	20.3	19.0	14
142 (14)	43	Deep Bay	05/03/84	1905	32				2	2	7	8	4	5	11	6	4	1				50	20.1	19.0	38
173 (17)	44	Stuart Channel	06/03/84	1910	33					3	5	5	4	13	5	8	6	1				50	20.5	19.0	26
173 (17)	45	Stuart Channel	07/03/84	0134	34					5	4	13	5	8	5	3	5	2				50	19.9	19.0	44
172 (17)	46	E. Maude I.	08/03/84	0910	35				1	5	8	16	7	4	3	2	3	1				50	19.1	19.0	60
172 (17)	47	Nanoose Harbour	08/03/84	1305	36				1		4	4	10	3	6	8	10	3	1			50	21.2	19.0	18
183 (18)	48	1/4 mi E. Fane I.	10/03/84	1850	37					9	20	14	2	2	-	1	1	1				50	18.2	19.0	86
	49					No set information; released catch; small juveniles																			
183 (18)	50	1/4 mi SE. Edith Pt.	12/03/84	0535	38		1			4	16	16	7	4	1	1						50	18.4	19.0	74

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW", STAT. AREAS 15 - 18, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
171 (17)	51	Parker I.	12/03/84	1900	39		1	16	23	9	3											52	15.4	19.0	100
171 (17)	52	Porlier Pass	13/03/84	0605	40				3	16	11	15	4	1								50	17.6	19.0	90
171 (17)	53	Porlier Pass	13/03/84	0635	41					2	7	7	3	6	5	12	5	2		1		50	20.7	19.0	32
171 (17)	54	Porlier Pass	14/03/84	0635	42				1	2	8	12	8	7	5	4	3					50	19.6	19.0	46
173 (17)	55	S. Side Hudson I.	20/03/84	1600	43				3	9	13	9	8	2	3	2	1					50	18.4	19.0	68
173 (17)	56	3/4 mi SW. DeCourcy I.	21/03/84	0530	44				2		14	13	5	4	7	4	1					50	19.2	19.0	58
173 (17)	Atlin Post	Pylades Channel	21/03/84	1600	45						7	12	8	9	8	2	2	2				50	20.0	19.0	38
171 (17)	57	N. Galiano Dock	21/03/84	1810	46				1	1	5	10	10	8	3	6	6					50	20.1	19.0	34
171 (17)	58	Wise I.	22/03/84	0620	47						2	6	9	16	12	4		1				50	20.4	19.0	16
181 (18)	59	Hawkins I.	22/03/84	1410	48						1		4	3	1	2	16	13	6	4		50	23.5	19.0	2
183 (18)	60	1/2 mi E. Mayne I.	22/03/84	1900	49					5	5	8	6	10	10	5		1				50	19.8	19.0	36
181 (18)	61	Collison Pt.	23/03/84	0815	50									3	5	12	14	12	2	1	1	50	23.3	19.0	0

Table 17. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 13 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
142 (14)	1	Deep Bay	17/02/84	1825	600	500+	30-40	7.9	1	70	54	59	46	0	-	-	1	58		
142 (14)	2	Deep Bay	20/02/84	2200	500+		150	8.2	1	44	61	28	39	-	-	-	1	27		
									2	38	52	35	48	-	-	-	-	35		
142 (14)	3	Komas Bluff	21/02/84	0510	50	V.L. skimmer	2-3	7.6	1	58	67	29	33	0.98	1.47	4	7	18		
									2	65	70	28	30	-	-	1	5	22		
142 (14)	4	Komas Bluff	21/02/84	1900	2000		15	8.1	1	42	52	39	48	-	-	-	1	38		
142 (14)	5	Komas Bluff	22/02/84	1925	2000	V.L. skimmer	5	8.1	1	32	38	53	62	-	-	-	3	50		
142 (14)	6	Komas Bluff	23/02/84	0545	2000	200-300	50	8.0	1	39	47	44	53	0.4	0.38	3	6	35		
142 (14)	7	Komas Bluff	24/02/84	1845	50	V.L. skimmer	5	7.9	1	49	52	46	48	0.6	0.62	6	4	36		1
142 (14)	8	Deep Bay	25/02/84	1845	700		100	7.1	1	37	48	40	52	1.2	1.16	7	-	33		
142 (14)	9	Fillongley Park	27/02/84	2100		V.L. skimmer	0.5	8.1	1	47	49	48	51	3.9	3.86	18	3	27	1	
									2	42	44	54	56	6.25	5.55	27	4	23	1	
									3	49	49	51	51	3.25	3.19	13	5	33		
142 (14)	10	Deep Hole	27/02/84	2345	1000	skimmer	50	7.8	1	38	52	35	48	3.78	3.95	13	10	12		
									2	52	71	21	29	2.52	4.38	11	5	5		
									3	37	54	32	46	4.5	4.85	14	7	11		
142 (14)	11	Sandy I.	28/02/84	1700		100	0	8.2	-	Water haul										
142 (14)	12	1 1/2 mi S. Sandy I.	28/02/84	1800		50	1	8.2	1	39	55	32	45	9.56	10.60	31	1	-		
									2	52	66	27	34	7.15	10.45	24	1	2		2
									3	48	62	29	38	5.5	7.29	24	2	3		
142 (14)	13	Sandy I.	28/02/84	2120		skimmer	10	8.1	1	50	52	47	48	7.0	7.22	30	6	11		
									2	58	57	43	43	6.5	7.63	31	3	9		
									3	58	58	42	42	6.9	8.21	33	4	5		

Table 17 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 13 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
142 (14)	14	Fillongley Park	29/02/84	0510	1000	500	100	8.1	1	38	50	38	50	9.4	9.40	34	3	1		
									2	37	50	37	50	9.1	9.10	32	4	1		
									3	45	56	35	44	7.8	8.90	28	3	4		
									4	40	53	36	47	8.8	9.28	31	3	2		
142 (14)	15	Off Hornby I.	29/02/84	1250		200-300	0	8.1	-	Water haul										
142 (14)	16	Deep Hole	29/02/84	1900		150	20-30	8.0	1	57	58	41	42	6.0	7.18	27	3	11		
									2	63	65	34	35	6.05	8.62	25	1	8		
142 (14)	17	Fillongley Park	01/03/84	0550	1000	50	20-30	8.0	1	32	40	48	60	13.28	11.07	46	1	1		
									2	51	57	39	43	7.38	8.52	31	4	4		
									3	52	59	36	41	8.42	10.29	34	-	2		
									4	46	59	32	41	8.45	10.30	29	2	1		
162 (16)	18	3/4 mi SE. of Hulks	01/03/84	1610	3000	400	100	8.0	1	55	46	65	54	4.92	4.54	26	7	32		
									2	52	46	62	54	6.0	5.51	33	5	24		4
152 (15)	19	Off Powell River Mill	02/03/84	0605	3000-5000	1000	150	7.5	1	52	61	33	39	7.57	9.76	26	3	4		
									2	43	51	42	49	8.25	8.35	35	3	4		
		Test #1, #3, #6 = Bag							3	50	55	41	45	5.9	6.54	30	6	5		
		Test #2, #4, #5 = Dipnet							4	40	48	44	52	8.5	8.11	34	2	8		
									5	51	53	45	47	7.5	8.00	35	1	9		
									6	51	50	51	50	8.85	8.85	46	-	5		
152 (15)	20	3/4 mi E. Sliammon Village	02/03/84	0915	1500	50	0.25	-	1	34	40	51	60	11.61	9.68	44	4	3		
									2	34	36	61	64	9.8	7.63	39	10	12		
									3	34	39	54	61	10.0	8.14	44	6	4		
152 (15)	21	1/2 mi SE. of Hulks	02/03/84	1400		300	-	7.8	-	Water haul										
152 (15)	22	1/2 mi SE. of Hulks	02/03/84	1430		300	100	7.8	1	47	44	60	56	5.2	4.63	34	7	19		
									2	56	51	53	49	4.2	4.32	27	7	19		
152 (15)	23	Off Smoke Stack	02/03/84	1800		30	5	7.6	1	50	44	64	56	4.75	4.23	29	8	27		
152 (15)	24	Off Hulks	03/03/84	0555		200	25	7.6	1	33	34	65	66	5.83	4.40	26	6	33		2
									2	45	42	63	58	5.20	4.46	29	3	31	2	

Table 17 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 13 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
172 (17)	25	Nanoose Bay	03/03/84	2035	2300	300	25	7.6	1	50	51	49	49	9.53	9.63	38	3	8		
									2	57	54	49	46	7.18	7.77	32	4	13		
									3	34	36	61	64	10.75	8.37	50	3	8		
									4	51	54	44	46	7.29	7.87	32	6	6		
172 (17)	26	Imperieuse Rock/ Nanoose	04/03/84	0200	2300	1000	15	7.3	1	60	48	64	52	6.0	5.81	36	3	25		
172 (17)	27	Off Spar Buoy/ Nanoose	04/03/84	0555	3000-4000	1000	75	7.3	1	51	55	42	45	9.05	10.01	33	6	3		1
									2	45	49	46	51	9.63	9.53	40	2	4		
									3	56	63	33	37	7.4	9.97	28	2	3		
									4	51	54	44	46	9.41	10.16	36	4	4		
173 (17)	28	3/4 mi SE. of Ruxton Pass	05/03/84	1910	3000	1000	50	8.2	1	64	54	55	46	4.44	4.81	25	4	26		
173 (17)	29	1 mi E. of Boat Harbour	05/03/84	2100		1000	60-70	8.2	1	53	64	30	36	8.54	11.83	26	1	3		
									2	54	65	29	35	7.85	11.25	26	1	2		
									3	40	48	43	52	11.65	11.25	38	3	2		
									4	49	59	41	46	11.15	12.23	36	-	5		
173 (17)	30[1]	S. DeCourcy I.	06/03/84	1930	15,000	100	35-40	8.3	1	52	56	41	44	10.05	11.39	36	2	3		
									2	41	49	42	51	9.85	9.73	36	2	4	1	2
									3	41	47	46	53	12.0	11.34	43	-	3		
173 (17)	31	1/8 mi S. DeCourcy I.	07/03/84	0020	15,000	100	-	8.4	-	Water haul										
173 (17)	32	Stuart Channel	07/03/84	1900	4,000	100	65	8.5	1	58	63	34	37	7.15	9.66	23	2	9		3
									2	44	48	48	52	11.2	10.73	40	-	8	2	1
									3	59	58	43	42	7.95	9.42	34	-	9		
173 (17)	33	Stuart Channel	08/03/84	0420				8.2	- Plant Test #1-7.25, #2-8.25, #3-4.75-no sample retained											
173 (17)	34[1]	Stuart Ch./ DeCourcy I.	08/03/84	0545	5000-7000	200	200	9.0	1	47	51	45	49	12.4	12.68	41	1	3		
									2	45	51	44	49	10.9	11.03	40	1	3		
									3	48	56	38	44	10.3	11.65	35	-	3		
									4	44	45	53	55	11.55	10.58	44	5	4		
131 (13)	35	Okisollo Channel	10/03/84	0945	2500	200	200	8.2	- Juveniles											
132 (13)	36	Deepwater Bay	11/03/84	0435	300	6	2	8.3	1	89	57	68	43	-	-	-	1	67	1	32

Table 17 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 13 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
137 (13)	37	SE. Rebecca Spit	12/03/84	0525			25	7.7	1	22	33	44	67	2.2	1.65	16	1	27	16	
152 (15)	38	N. Hurtado Pt.	13/03/84	0525	500	skim	15	8.4	1	4	44	5	56	-	-	3	-	2	41	
152 (15)	39	Keefer Rock	15/03/84	0500	300-500	skim	50	8.4	-	All juveniles										
142 (14)	Atlin Post	Upper Baynes Sound	26/02/84	1300	5	5	0.1	-	1	37	47	41	53	9.6	9.13	35	-	6	1	
				Test #1 Dipnet Sample					2	32	42	44	58	10.0	8.64	35	1	8		
									3	56	52	52	48	8.17	8.49	41	1	10		
173 (17)	Sarah Margaret	W. Blackberry Pt.	27/02/84	0510				-	1	38	50	38	50	-	-	-	3	35		

(Sara Margaret sample for verification of roe cond. - transported by aircraft)

Information on fishery (Table 15).

[1]Charter payment herring.

Table 18. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 13 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
142 (14)	1	Deep Bay	17/02/84	1825	1						2	5	6	9	12	8	6	1	1			50	21.2	19.0	14
142 (14)	2	Deep Bay	20/02/84	2200	2						1	1	2	4	13	10	14	4	1			50	22.3	19.0	4
142 (14)	3	Komas Bluff	21/02/84	0510	3				1	1	6	6	5	12	9	5	3	1	1			50	20.4	19.0	28
142 (14)	4	Komas Bluff	21/02/84	1900	4							2	7	12	11	9	7	3				51	21.5	19.0	4
142 (14)	5	Komas Bluff	22/02/84	1925	5					1	2	9	4	15	8	7	3	1				50	20.6	19.0	24
142 (14)	6	Komas Bluff	23/02/84	0545	6					1	1	11	6	5	10	15	2	2				53	20.9	19.0	25
142 (14)	7	Komas Bluff	24/02/84	1845	7						5	9	8	11	7	6	4					50	20.3	19.0	28
142 (14)	8	Deep Bay	25/02/84	1845	8					1	2	5	6	9	7	11	6	3				50	21.2	19.0	16
142 (14)	9	Fillongley Park	27/02/84	2100	9						2	9	12	12	10	3	2					50	20.2	19.0	22
142 (14)	10	Deep Hole	27/02/84	2345	10					1		2	3	7	11	13	10	3				50	21.9	19.0	6
142 (14)	11	Sandy I.	28/02/84	1700	-						Water haul											-	-	-	-
142 (14)	12	1 1/2 mi S. Sandy I.	28/02/84	1800	11							5	4	6	12	11	8	2	1			49	21.7	19.0	10
142 (14)	13	Sandy I.	28/02/84	2120	12					1	1	6	5	9	19	4	4		1			50	20.9	19.0	16
142 (14)	14	Fillongley Park	29/02/84	0510	13						2	4	7	8	14	10	3	2				50	21.1	19.0	12
142 (14)	15	Off Hornby I.	29/02/84	1250	-						Water haul											-	-	-	-
142 (14)	16	Deep Hole	29/02/84	1900	14				1		5	12	10	11	8	2		1				50	19.7	19.0	36

Table 18 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 13 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
142 (14)	17	Fillongley Park	01/03/84	0550	15						4	5	4	12	15	4	4	1	1			50	20.9	19.0	18
142 (14)	18	3/4 mi SE. of Hulks	01/03/84	1610	16				1	6	8	12	12	5	5		1					50	18.9	19.0	54
152 (15)	19	Off Powell River Mill	02/03/84	0605	17					2	7	5	10	12	8	3	2					49	19.9	19.0	29
152 (15)	20	3/4 mi E. Sliammon Village	02/03/84	0915	18						2	7	16	15	5	4	1	1				51	20.2	19.0	18
152 (15)	21	1/2 mi SE. of Hulks	02/03/84	1400	-			Water haul														-	-	-	-
152 (15)	22	1/2 mi SE. of Hulks	02/03/84	1430	19						3	14	17	12	4			1				51	19.6	19.0	33
152 (15)	23	Off Smoke Stack	02/03/84	1800	20			1		3	8	15	9	10	4	1						51	19.0	19.0	53
152 (15)	24	Off Hulks	03/03/84	0555	21					1	6	16	10	9	4	3			1			50	19.5	19.0	46
172 (17)	25	Nanoose Bay	03/03/84	2035	22				2	1	8	11	9	9	5	4	1					50	19.4	19.0	44
172 (17)	26	Imperieuse Rock/ Nanoose	04/03/84	0200	23				1	7	14	15	6	5		2						50	18.4	19.0	74
172 (17)	27	Off Spar Buoy/ Nanoose	04/03/84	0555	24					1	5	8	9	9	5	10	4					51	20.4	19.0	28
173 (17)	28	3/4 mi SE. of Ruxton Pass	05/03/84	1910	25		1			2	20	12	6	4	3	1		1				50	18.6	19.0	70
173 (17)	29	1 mi E. of Boat Harbour	05/03/84	2100	26					3	4	7	2	8	6	11	4	2	2	1		50	21.0	19.0	28
173 (170)	30	S. DeCourey I.	06/03/84	1930	27						1	8	7	12	11	4	4	3				50	20.8	19.0	18
173 (17)	31	1/8 mi S. DeCourcy I.	07/03/84	0020	-			Water haul														-	-	-	-
173 (17)	32	Stuart Channel	07/03/84	1900	28				1	2	4	6	9	9	8	5	3		3			50	20.4	19.0	26

Table 18 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 13 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	33	Stuart Channel	08/03/84	0420	29						3	6	5	13	5	12	5	1				50	20.9	19.0	18
175 (17)	34	Stuart Ch./ DeCourcy I.	08/03/84	0545	30					2	8	9	6	7	8	5	3	2				50	20.1	19.0	38
131 (13)	35	Okisollo Channel	10/03/84	0945	31		1	5	17	14	10	1		2								50	16.3	19.0	96
132 (13)	36	Deepwater Bay	11/03/84	0435	32					8	19	15	5	1	1	1						50	18.1	19.0	84
137 (13)	37	SE. Rebecca Spit	12/03/84	0525	33				7	15	12	10		4	1	1						50	17.5	19.0	88
152 (15)	38	N. Hurtado Pt.	13/03/84	0525	34			2	1	2	8	9	12	11	2	3						50	19.1	19.0	44
152 (15)	39	Keefer Rock	15/03/84	0500	35		All juveniles															-	-	19.0	100
142 (14)	Atlin Post	Upper Baynes Sound	26/02/84	1300	Dip Net						1	1	5	14	18	10	1					50	21.1	19.0	4
173 (17)	Sara Margaret	W. Blackberry Pt.	27/02/84	0510		(Sara Margaret sample for verification of roe cond.)																			

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SARAH MARGARET", STAT. AREA 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
173 (17)	29	1/2 mi off Blackberry Pt.	07/03/84	2100	500	200	75	8.1	1	77	56	60	44	1.55	1.77	8	5	47		1
									2	105	71	43	29	0.5	0.86	4	4	35		2
173 (17)	30	Pylades Channel	08/03/84	0445	2000-3000	200	85	7.8	1	51	61	32	39	10.9	14.12	28	1	3		
									2	60	69	27	31	8.0	12.90	19	2	6		
									3	40	56	32	44	8.75	9.85	23	3	6		
173 (17)	31	Pylades/Ruxton	09/03/84	1930	2000-3000	200	80	8.5	1	47	51	46	49	11.3	11.41	40	3	3		
									2	60	65	32	35	11.32	16.26	30	1	1		
									3	43	49	45	51	11.5	11.25	33	7	5		
173 (17)	32	Stuart Channel	10/03/84	1930	8000-10000	250	100	-	1	48	51	47	49	12.0	12.12	43	-	4		
									2	50	51	48	49	10.5	10.71	40	1	7		
173 (17)	33	2/3 mi of Yellow Pt.	11/03/84	1900	8000-10000	200	10-15	-	1	51	57	39	43	9.8	11.32	37	-	2		
									2	48	49	49	51	10.7	10.59	44	2	3		
173 (17)	34	Stuart/Ruxton	14/03/84	0915	-	scratches		8.5	-	Water haul										
173 (17)	35	Stuart/Ruxton	14/03/84	1915	10,000	500	100	8.5	1	67	50	66	50	9.25	9.32	54	6	6		1
									2	74	54	64	46	8.65	9.32	51	10	3		2
172 (17)	36	Nanoose Bay (1/2 mi off Maude I.)	15/03/84	1815	1000	100	40	8.3	1	40	51	39	49	11.3	11.44	39	-	-	11	1
									2	45	52	41	48	11.0	11.53	39	1	1	4	

Fishery information (Table 15).

[1]Charter payment herring.

Table 20. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SARAH MARGARET", STAT. AREA 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	1	Between Shingle Pt. & Porlier Pass	20/02/84	2230	1				3	6	8	7	13	2	8	1	1		1			50	19.1	19.0	48
171 (17)	2	Secretary I.	21/02/84	0620	2			1	1	1	18	12	3	6	2	4	2					50	18.9	19.0	66
173 (17)	3	Abeam Pylades I.	22/02/84	1845	3				1	1	8	16	3	7	6	7		1				50	19.6	19.0	52
173 (17)	4	Cardale Pt.	22/02/84	2120	4					1	1	2	3	3	12	12	12	3				49	21.9	19.0	8
171 (17)	5	Between Hall I. & Pile Bay	24/02/84	1930	5					2	8	18	7	8	5	2						50	19.2	19.0	56
171 (17)	6	Porlier Pass	24/02/84	2145	6					1	7	5	10	11	7	4	3	2				50	20.2	19.0	26
171 (17)	7	Porlier Pass	25/02/84	1940	7						3	5	1	11	6	13	6	4	1			50	21.5	19.0	16
171 (17)	8	Porlier Pass (Reid I.)	26/02/84	0915	-					Water haul												-	-	-	-
171 (17)	9	Porlier Pass	26/02/84	0915	8						3	14	8	6	10	6	3					50	20.2	19.0	34
173 (17)	10	W. Blackberry Pt.	27/02/84	0510	9							2	2	2	10	15	12	7				50	27.5	19.0	4
173 (17)	11	Pylades Channel	27/02/84	1910	10						1		5	12	9	11	11	3				52	21.8	19.0	2
173 (17)	12	Reid I.	28/02/84	0610	-					Water haul												-	-	-	-
173 (17)	13	Pylades Channel	28/02/84	1830	11					2	5	4	4	9	9	7	6	3	1			50	21.0	19.0	22
173 (17)	14	Pylades Channel (Ruxton Pass)	28/02/84	2000	12					1		4	1	8	17	13	5	1				50	21.5	19.0	10
172 (17)	15	Nanoose Bay	29/02/84	1900	13				2	5	8	17	6	8	3		1					50	18.7	19.0	64
172 (17)	16	Nanoose Bay	01/03/84	0445	14			1		5	5	9	12	8	4	4		2				50	19.5	19.0	40
173 (17)	17	Ruxton Pass	01/03/84	1920	15				1	1	4	9	5	10	10	4	2	4				50	20.4	19.0	30

Table 20 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SARAH MARGARET", STAT. AREA 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	18	Pylades I.	01/03/84	2125	16					1	4	3	11	9	9	9	4					50	20.6	19.0	16
172 (17)	19	Maude I.	02/03/84	2000	17						3	9	7	12	6	6	6	1				50	20.6	19.0	24
172 (17)	20	Nanoose Harbour	02/03/84	2200	18						2	7	11	16	6	5	2	1				50	20.4	19.0	18
172 (17)	21	Nanoose Harbour	03/03/84	0445	19				2	1	10	14	10	5	5	3						50	19.1	19.0	54
172 (17)	22	Nanoose Bay	03/03/84	0100	-					Water haul												-	-	-	-
173 (17)	23	Stuart Channel	03/03/84	2130	20				1		2	7	6	7	10	11	4	2				50	20.9	19.0	20
173 (17)	24	Gabriola Pass	04/03/84	0500	21						3	10	5	7	4	8	11	2				50	21.0	19.0	26
173 (17)	25	Ruxton Pass	04/03/84	0630	22				2	1	7	6	2	6	4	8	9	4	1			50	20.9	19.0	32
173 (17)	26	Stuart Channel (W. Ruxton I.)	04/03/84	2000	23				1	2	2	3	4	10	8	8	10	2				50	21.2	19.0	16
173 (17)	27	Stuart Channel	05/03/84	1900	24			1		6	14	7	5	9	2	5	1					50	19.0	19.0	56
173 (17)	28	Stuart/DeCourcy	06/03/84	2000	25						7	5	5	9	7	9	5	2	1			50	20.8	19.0	24
173 (17)	29	1/2 mi. off Blackberry Pt.	07/03/84	2100	26					9	16	12	9	2	2							50	18.2	19.0	74
173 (17)	30	Pylades Channel	08/03/84	0445	27					3	5	5	5	5	7	10	7	3				50	20.9	19.0	26
173 (17)	31	Pylades/Ruxton	09/03/84	1930	28					1	12	10	6	4	3	6	6	2				50	20.0	19.0	46
173 (17)	32	Stuart Channel	10/03/84	1930	29					2	12	11	6	4	7	2	4	2				50	19.7	19.0	50
173 (17)	33	2/3 mi off Yellow Pt.	11/03/84	1900	30						6	8	7	13	5	8	3					50	20.3	19.0	28
173 (17)	34	Stuart/Ruxton	14/03/84	0915	-					Water haul												-	-	-	-

Table 20 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SARAH MARGARET", STAT. AREA 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	35	Stuart/Ruxton	14/03/84	1915	31					5	20	14	9	2								50	18.2	19.0	78
172 (17)	36	Nanoose Bay (1/2 mi off Maude I.)	15/03/84	1815	32				1	2	3	7	10	9	8	5	5					50	20.2	19.0	26

Table 21. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ABRAXAS PROVIDER", STAT. AREAS 14 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
172 (17)	1	Nanoose Bay	20/02/84	1914	800-1000	800-1000	150	7.4	1	89	64	51	36	0	-	-	50	1		1
172 (17)	2	Lantzville/ Nanoose	22/02/84	1930	4000	1000	75	7.2	1	91	65	50	35	0	-	1	3	46		2
									2	45	54	39	46	0	-	0	0	39		1
144 (14)	3	Nuttal Bay	23/02/84	0630		50	10	-	-	No information										
172 (17)	4	Maude I.	24/02/84	0530	1500	700-800	35	7.8	1	103	69	47	31	1.75	2.80	10	5	32		
									2	100	68	48	32	0.4	0.62	4	6	38		
									3	127	77	38	23	0.25	0.54	4	2	32		
									4	73	70	31	30	0.0	-	-	2	29		
									5	71	72	27	28	0.31	0.56	1	7	19		
									6	77	72	30	28	0.72	1.29	1	2	27		
172 (17)	5	Maude I./ Nanoose	24/02/84	2144	8000	8000	100	7.8	1	49	49	50	51	0.42	0.42	2	1	47	4	
									2	47	49	48	51	0	-	-	-	48	5	
									3	61	54	52	46	0.1	0.11	1	-	51		
172 (17)	6	Amelia I.	25/02/84	1900		500		-	-	Water haul										
172 (17)	7	Maude I.	26/02/84	0450	8000		40	7.8	1	47	44	59	56	0.84	0.75	4	-	55		3
									2	48	44	62	56	0.40	0.35	2	5	55		2
									3	51	46	61	54	1.19	1.09	7	2	52		3
172 (17)	8	Maude I.	27/02/84	1900	8000	500	50	7.9	1	92	70	40	30	0.38	0.63	4	-	36		26
									2	77	64	44	36	0.97	1.33	6	3	35		
									3	76	59	52	41	1.25	1.54	8	2	42		
172 (17)	9	Amelia I.	27/02/84	2235	500		0	8.4	-	Water haul										
144 (14)	10	Opp. Cottam Pt.	28/02/84	0546			0	-	-	Water haul										
162 (16)	11	Stillwater Bay	29/02/84	0527			0	7.3	-	Water haul										
162 (16)	12	Myrtle Pt.	29/02/84	0735			0	-	-	Water haul										
162 (16)	13	Myrtle Pt.	29/02/84	0815			0	-	-	Water haul										

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ABRAXAS PROVIDER", STAT. AREAS 14 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
162 (16)	14	Albion Pt.	29/02/84	0933			0	-	-	Water haul										
162 (16)	15	Albion Pt.	29/02/84	1017			0	7.5	-	Water haul										
162 (16)	16	Stillwater Bay	29/02/84	1055			0	-	-	Water haul										
162 (16)	17	Stillwater Bay	29/02/84	1136			0	-	-	Water haul										
162 (16)	18	Evenden Pt.	29/02/84	1430			0	-	-	Water haul										
162 (16)	19	Evenden Pt.	29/02/84	1714			0	-	-	Water haul										
162 (16)	20	Stillwater Bay	29/02/84	2055	3000-5000	10-20	5-10	7.5	1	31	25	91	75	0.75	0.50	5	3	83		9
									2	20	17	97	83	1.6	0.97	9	3	85		5
									3	30	26	87	74	1.68	1.13	11	8	68		5
162 (16)	21	Westview	01/03/84	0920	50-75	75	50	7.5	1	34	41	49	59	10.5	8.90	41	1	7		1
									2	37	45	46	55	8.66	7.82	33	5	8		1
									3	38	47	42	53	8.05	7.67	31	3	8		1
									4	47	56	37	44	6.55	7.44	26	4	7		
									5	38	46	44	54	9.4	8.75	32	2	10		
162 (16)	22	NW. Grief Pt.	01/03/84	1745		25	1	7.6	1	57	43	76	57	2.9	2.54	18	3	55		3
									2	49	38	81	62	2.75	2.21	21	1	59		4
									3	46	36	83	64	3.2	2.49	23	3	57		3
162 (16)	23	1/2 mi N. NW. Grief Pt.	02/03/84	0450		150	75	7.4	1	43	41	61	59	9.4	8.01	44	3	14		
									2	53	52	49	48	9.87	10.28	40	3	6		
									3	46	43	61	57	9.52	8.35	43	5	13		
162 (16)	24	SW. Hulks	02/03/84	0720		100	20	6.7	1	40	52	37	48	9.5	9.88	29	-	8		
									2	36	46	43	54	10.35	9.51	34	-	9		
									3	33	42	45	58	9.42	8.16	29	-	16		
162 (16)	25	Grief Pt.	02/03/84	1735		250	200	7.4	1	44	47	49	53	8.7	8.25	39	3	7		1
									2	38	47	43	53	7.85	7.39	34	6	3		
									3	47	48	51	52	9.07	8.72	39	5	7		

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ABRAXAS PROVIDER", STAT. AREAS 14 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
162 (16)	26	Westview	03/03/84	0550		200	100	6.8	1	52	48	57	52	7.4	7.07	41	4	12		
									2	59	50	59	50	9.58	9.58	50	1	8		
									3	50	46	58	54	7.76	7.23	38	2	18		
162 (16)	27	Westview	03/03/84	1440			0	7.3	-	Water haul										
162 (16)	28	Westview	03/03/84	1535	1500	200	100	7.8	1	61	47	70	53	2.75	2.57	17	5	48		
									2	59	44	75	56	4.3	3.84	36	8	31		8
									3	51	40	77	60	5.2	4.32	29	2	46		4
152 (15)	29	Sliammon W.	03/03/84	1731		150	50	7.9	1	61	57	46	43	8.31	9.66	37	1	8		
									2	44	42	60	58	10.15	8.80	44	2	14		1
									3	46	46	53	54	8.8	8.22	42	3	8		
152 (15)	30	E. Scuttle Bay	04/03/84	0602		200	100		1	45	53	40	47	9.65	10.24	36	2	2		
									2	33	45	41	55	10.00	9.92	34	5	2		
									3	32	37	54	63	10.82	8.61	37	11	6		
152 (15)	31	S. Powell River Mill	05/03/84	0705	2000-3000	500	200	7.2	1	64	55	53	45	7.4	8.17	38	2	13		
									2	42	45	51	55	8.45	7.71	34	3	14		1
173 (17)	32[1]	SE. of DeCourcy I.	05/03/84	2021		500-1000	135	8.2	1	41	51	40	49	10.85	10.98	33	2	5		
									2	33	40	49	60	13.43	11.23	43	1	5		
									3	41	49	42	51	11.13	11.00	38	4	-		
142 (14)	33	Outside of Lambert Channel	07/03/84	1335		15	5	8.3	1	51	66	26	34	6.15	9.10	22	-	4	6	
									2	28	42	38	58	9.73	8.45	32	-	6	7	
									3	39	48	43	52	10.58	10.10	40	1	2	4	
142 (14)	34	Baynes Sound	07/03/84	1710				8.6	-	Water haul										
142 (14)	35	NW. End Baynes Sound	07/03/84	1741		100	100	8.6	1	54	57	40	43	9.06	10.63	39	-	1		
									2	43	52	39	48	12.01	12.62	38	-	1	1	
									3	47	64	27	36	8.05	11.03	27	-	-	1	
142 (14)	36	Boyle Pt.	08/03/84	0831				-	-	Water haul										
142 (14)	37	Boyle Pt./ Lambert Ch.	08/03/84	0853	3000-5000	500	100	8.0	1	41	59	28	41	9.35	11.51	27	-	1	1	1
									2	34	53	30	47	12.05	12.85	30	-	-	1	1
									3	28	47	32	53	12.8	12.01	32	-	-	2	
144 (14)	38	Off Craig Bay	08/03/84	0855		50		8.4	-	Water haul										

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ABRAXAS PROVIDER", STAT. AREAS 14 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
144 (14)	39	Craig Bay	09/03/84	1744		70	15	8.6	1	36	49	38	51	10.75	10.46	36	2	-	6	
									2	47	55	38	45	10.85	12.14	36	2	-	5	
									3	44	51	42	49	11.9	12.19	42	-	-	3	
144 (14)	40	Nuttal Bay	10/03/84	0837	3000	500	200	8.3	1	43	48	47	52	11.31	10.83	43	-	4	4	
									2	48	59	33	41	8.85	10.87	30	1	2	4	
									3	48	55	39	45	11.61	12.96	38	-	1		
172 (17)	41	Nanoose Bay	10/03/84	1035		50	20	8.4	1	43	54	36	46	10.65	11.68	34	-	2	4	
									2	52	58	37	42	1.7	14.06	37	-	-	3	
									3	43	50	43	50	11.99	11.99	42	-	1	2	
165 (16)	42	Narrows Inlet	13/03/84	1400				-	-	Water haul										
165 (16)	43	Nine Mile Pt./ Salmon Inlet	14/03/84	0728				-	-	Water haul										
164 (16)	44	Deserted Bay/ Jervis Inlet	15/03/84	0615				-	-	Water haul										

Fishery information (Table 15).

[1]Charter payment herring.

Table 22. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ABRAXAS PROVIDER", STAT. AREAS 14 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
172 (17)	1	Nanoose Bay	20/02/84	1914	1					1	4	4	6	6	9	7	8	2	3			50	21.3	19.0	18
172 (17)	2	Lantzville/ Nanoose	22/02/84	1930	2				2	1	5	6	7	15	7	5	1					49	19.9	19.0	29
172 (17)	2	Lantzville/ Nanoose	22/02/84	1930	2							2	8	11	10	11	4	4				50	21.5	19.0	4
144 (14)	3	Nuttal Bay	23/02/84	0630	3			11	37	21	22	7	2									100	16.3	19.0	98
172 (17)	4	Maude I.	24/02/84	0530	4					1	6	12	7	10	7	3	3	1				50	20.0	19.0	38
172 (17)	5	Maude I./ Nanoose	24/02/84	2144	5					9	18	26	16	13	10	6	2					100	19.2	19.0	53
172 (17)	6	Amelia I.	25/02/84	1900	-			Water haul														-	-	-	-
172 (17)	7	Maude I.	26/02/84	0450	6						4	7	9	11	10	6	2	2				51	20.5	19.0	22
172 (17)	8	Maude I.	27/02/84	1900	7			3	7	6	19	29	17	11	7	1						100	18.5	19.0	64
172 (17)	9	Amelia I.	27/02/84	2235	-		6	20	20	4	1	1										52	15.1	19.0	100
144 (14)	10	Opp. Cottam Pt.	28/02/84	0546	-	6		3														9	13.2	19.0	100
162 (16)	11	Stillwater Bay	29/02/84	0527	-			Water haul														-	-	-	-
162 (16)	12	Myrtle Pt.	29/02/84	0735	-			Water haul														-	-	-	-
162 (16)	13	Myrtle Pt.	29/02/84	0815	-			Water haul														-	-	-	-
162 (16)	14	Albion Pt.	29/02/84	0933	-			Water haul														-	-	-	-
162 (16)	15	Albion Pt.	29/02/84	1017	-			Water haul														-	-	-	-

Table 22 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ABRAXAS PROVIDER", STAT. AREAS 14 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
162 (16)	16	Stillwater Bay	29/02/84	1055	-			Water haul														-	-	-	-
162 (16)	17	Stillwater Bay	29/02/84	1136	-			Water haul														-	-	-	-
162 (16)	18	Evenden Pt.	29/02/84	1430	-			Water haul														-	-	-	-
162 (16)	19	Evenden Pt.	29/02/84	1714	-			Water haul														-	-	-	-
162 (16)	20	Stillwater Bay	29/02/84	2055	-				4	4	6	14	12	8	2							50	18.7	19.0	56
162 (16)	21	Westview	01/03/84	0920	8							2	2	19	11	12	3	1				50	21.3	19.0	4
162 (16)	22	NW. Grief Pt.	01/03/84	1745	9			2	4	2	16	10	9	3	2	1	1					50	18.3	19.0	68
162 (16)	23	1/2 mi N. NW. Grief Pt.	02/03/84	0450	10						5	16	13	12	3	1						50	19.4	19.0	42
162 (16)	24	SW. Hulks	02/03/84	0720	11								5	8	13	14	4	6				50	21.9	19.0	10
162 (16)	25	Grief Pt.	02/03/84	1735	12						1	7	15	13	11	3						50	20.2	19.0	16
162 (16)	26	Westview	03/03/84	0550	13						6	18	7	7	9	3						50	19.6	19.0	48
162 (16)	27	Westview	03/03/84	1440	-			Water haul														-	-	-	-
162 (16)	28	Westview	03/03/84	1535	14				4	3	11	17	9	6								50	18.3	19.0	70
152 (15)	29	Sliammon W.	03/03/84	1731	15					1	5	11	16	8	7	1	1					50	19.6	19.0	34
152 (15)	30	E. Scuttle Bay	04/03/84	0602	16					1	1		9	19	12	7		1				50	20.8	19.0	4
152 (15)	31	S. Powell River Mill	05/03/84	0705	17			1		2	11	5	7	7	8	5	4					50	19.8	19.0	38

Table 22 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ABRAXAS PROVIDER", STAT. AREAS 14 - 17, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	32	SE. of DeCourcy I.	05/03/84	2021	18					1	1	7	7	15	10	7	3					51	20.6	19.0	18
142 (14)	33	Outside of Lambert Channel	07/03/84	1335	19						1	3	12	13	10	9	2					50	20.8	19.0	8
142 (14)	34	Baynes Sound	07/03/84	1710	-				Water haul													-	-	-	-
142 (14)	35	NW. End Baynes Sound	07/03/84	1741	20					2	1	2	10	9	7	14	5					50	21.0	19.0	10
142 (14)	36	Boyle Pt.	08/03/84	0831	-				Water haul													-	-	-	-
142 (14)	37	Boyle Pt./ Lambert Ch.	08/03/84	0853	21						1		1	6	12	16	11	3				50	22.2	19.0	2
144 (14)	38	Off Craig Bay	08/03/84	0855	-				Water haul													-	-	-	-
144 (14)	39	Craig Bay	09/03/84	1744	22						4	2	7	15	8	11	3					50	20.8	19.0	12
144 (14)	40	Nuttal Bay	10/03/84	0837	23					2	3	4	2	11	11	9	6	1	1			50	21.1	19.0	18
172 (17)	41	Nanoose Bay	10/03/84	1035	24			1		1	1	7	6	9	7	10	6	2				50	20.9	19.0	20
165 (16)	42	Narrows Inlet	13/03/84	1400	-				Water haul													-	-	-	-
165 (16)	43	Nine Mile Pt./ Salmon Inlet	14/03/84	0728	-				Water haul													-	-	-	-
164 (16)	44	Deserted Bay/ Jervis Inlet	15/03/84	0615	-				Water haul													-	-	-	-

Table 23. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 23, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
232 (23)	1	Chrow I.	25/02/84	1855	150	150	40	7.7	1	66	47	73	53	2.0	1.90	16	4	53		
									2	72	44	92	56	3.0	2.67	26	7	59		
233 (23)	2	Lyall Pt.	26/02/84	1130	200	50	50	7.5	1	55	50	55	50	9.0	9.0	39	2	14		
									2	56	50	55	50	8.0	8.08	34	5	16		
									3	60	52	56	48	7.0	7.25	30	5	21		
232 (23)	3	Chrow I.	27/02/84	0636	3000	300	35	7.4	1	60	47	69	53	5.0	4.67	28	10	31		
									2	58	41	82	59	6.5	5.55	34	14	34		
									3	72	50	71	50	6.0	6.04	34	7	30		
233 (23)	4	Mayne Bay	27/02/84	2145	-	-	-	7.4	-	Water haul										
232 (23)	5	Chrow I.	28/02/84	0620	4000	500	175	7.2	1	54	60	36	40	4.5	5.63	23	4	9		
									2	40	40	60	60	8.5	7.08	37	7	16		
									3	53	52	49	48	5.5	5.73	25	11	13		
232 (23)	6	Chrow I.	01/03/84	1845	2000-3000		200	8.0	1	62	44	79	56	10.0	8.93	50	5	24		2
									2	73	47	83	53	6.5	6.11	42	7	34		
									3	72	50	73	50	8.0	7.95	50	7	16		
232 (23)	7	Newcombe Channel	02/03/84	1642		50	5	8.0	1	84	51	82	49	7.0	7.09	46	7	29		
									2	94	57	71	43	4.5	5.23	42	5	24		
232 (23)	8	Newcome Channel	02/03/84	1856			70		1	61	37	103	63	7.5	5.97	55	5	43		1
									2	82	49	86	51	5.5	5.37	40	7	39		
									3	88	51	86	49	5.0	5.06	42	8	36		
232 (23)	9	Chrow I.	03/03/84	1904			150	8.0	1	65	49	68	51	8.5	8.32	39	9	20		
									2	61	48	66	52	7.75	7.45	43	-	23		
									3	55	47	63	53	10.0	9.36	42	5	16		2
232 (23)	10	Stopper I.	04/03/84	0919	1000-1500	500	150	8.1	1	58	55	48	45	11.5	12.69	43	2	3		
									2	38	38	62	62	13.5	10.89	55	3	4		
									2	69	63	41	37	8.5	11.39	36	2	3		
									4	58	51	56	49	10.0	10.18	52	1	3		
232 (23)	11	David I.	05/03/84	0828	3000	300/500	300	8.0	1	47	47	54	53	13.5	12.62	48	1	5		
									2	47	48	50	52	12.0	11.65	45	2	3		
									3	44	44	56	56	14.0	12.50	51	3	2		
232 (23)	12	Stopper I.	05/03/84	0948		100		8.0	1	71	50	70	50	10.25	10.33	55	-	15		
									2	80	54	67	46	11.25	12.34	58	-	9		
									3	81	54	69	46	8.5	9.24	51	-	18		

Table 23 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 23, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
232 (23)	13	Newcombe Channel	05/03/84	1145		500	20	8.2	1	95	49	100	51	2.0	1.95	25	2	73		2
232 (23)	14	Chrow I.	05/03/84	2024	500	200	70-80	8.2	1	64	44	80	56	10.0	8.99	60	3	17		2
									2	73	55	59	45	7.5	8.39	46	4	9		
									3	73	53	66	47	8.25	8.68	51	-	15		
232 (23)	15	Spilling Islets	06/03/84	0607		600-800	40	8.1	1	63	48	67	52	10.0	9.71	48	7	12		
									2	54	46	63	54	11.0	10.22	50	4	9		
									3	56	42	76	58	13.0	11.28	60	3	13		
232 (23)	16	Chrow I.	06/03/84	1522	2000	Whole bunch	400	-	1	57	46	66	54	11.75	10.94	55	4	7		
									2	59	50	60	50	12.0	11.90	50	5	5		
									3	65	53	57	47	12.25	13.12	48	6	3		
232 (23)	17	Twin Rivers	06/03/84	1748				-	-	Water haul										
232 (23)	18	Twin Rivers	06/03/84	2055		200	40-50	-	1	64	50	65	50	10.0	9.92	50	5	10		
									2	52	37	87	63	11.0	8.79	58	14	15		
									3	53	39	82	61	12.0	9.88	58	12	12		
232 (23)	19	Twin Rivers	07/03/84	1927		200-300	50	-	1	84	61	54	39	9.5	12.15	47	5	2		1
									2	79	55	65	45	9.0	9.98	46	10	9		
									3	52	39	83	61	14.0	11.38	71	6	6		
									4	78	51	76	49	11.0	11.13	63	7	6		
232 (23)	20	Chrow I.	08/03/84	0530			150-170	-	1	68	53	60	47	10.0	10.66	51	4	5		
									2	72	50	72	50	11.5	11.50	57	5	10		
									3	57	46	68	54	13.5	12.41	61	2	5		
									4	48	38	78	62	14.5	11.71	68	5	5		
231 (23)	21[1]	Pipestem Inlet	12/03/84	0710	000	110	110	-	1	52	48	57	52	14.5	13.86	57	-	-		
									2	60	50	61	50	13.0	12.90	60	-	1		
									3	53	45	64	55	14.0	12.80	63	-	1		
231 (23)	22[1]	Pipestem Inlet	12/03/84	1100	700-1000	75	75	-	1	46	45	56	55	14.0	12.75	55	-	1		
									2	65	55	53	45	13.0	14.48	52	1	-		
									3	55	49	58	51	12.3	11.99	58	-	-		
									4	82	60	55	40	8.0	9.98	52	2	1		
									5	71	58	52	42	9.0	10.64	50	2	-		
									6	61	54	51	46	11.0	12.09	51	-	-		

Table 23 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 23, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or immat.
232 (23)	23	Stopper I.	12/03/84	1650				-	-	Water haul										
231 (23)	24	Pipestem Inlet	12/03/84	1750	700-1000	50	50	-	1	82	56	64	44	11.0	12.56	61	3	-		
232 (23)	25	Forbes I.	13/03/84	0825	100-500	100-500	50	-	1	42	36	74	64	16.25	12.74	70	2	2		
									2	56	46	65	54	13.0	12.10	60	-	5	2	
									3	72	56	56	44	11.75	13.41	52	1	3	1	
									4	62	53	55	47	9.0	9.57	54	-	1		
									5	47	46	55	54	14.25	13.22	52	-	3		

Seine Opening

Management sub-areas 23-8, 23-9 and 23-10 opened on March 8 for 1 hour and 44 minutes for a hailed catch of 6000 tons. The roe yields were 11-12%.

[1]Charter payment herring.

Table 24. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 23, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
232 (23)	1	Chrow I.	25/02/84	1855	1					2	10	16	5	7	5		4	2				51	19.5	19.0	55
233 (23)	2	Lyall Pt.	26/02/84	1130	2						2	3	7	8	9	10	6	4	1			50	21.5	19.0	10
232 (23)	3	Chrow I.	27/02/84	0636	3				1	1	5	8	6	14	8	3	2	1				49	20.1	19.0	31
233 (23)	4	Mayne Bay	27/02/84	2145	-				Water haul													-	-	-	-
232 (23)	5	Chrow I.	28/02/84	0620	4					1	4	1	3	9	12	10	9	1				50	21.3	19.0	12
232 (23)	6	Chrow I.	01/03/84	1845	5					1	6	9	7	10	7	4	4	1	1			50	20.3	19.0	32
232 (23)	7	Newcombe Channel	02/03/84	1642	6					4	12	12	9	3	4	3	2	1				50	19.2	19.0	56
232 (23)	8	Newcombe Channel	02/03/84	1856	7					1	11	14	9	6	3	1	3	2				50	19.5	19.0	52
232 (23)	9	Chrow I.	03/03/84	1904	8					2	5	4	4	9	7	9	6	5				51	21.0	19.0	22
232 (23)	10	Stopper I.	04/03/84	0919	9						2	2	6	12	5	8	11	4				50	21.6	19.0	8
232 (23)	11	David I.	05/03/84	0828	10							2	3	7	13	8	8	7	2			50	22.2	19.0	4
232 (23)	12	Stopper I.	05/03/84	0948	11					2	5	5	9	10	5	10	3					49	20.3	19.0	24
232 (23)	13	Newcombe Channel	05/03/84	1145	12					5	23	14	6	1	1							50	18.1	19.0	84
232 (23)	14	Chrow I.	05/03/84	2024	13						5	15	11	13	2	1	4					51	19.7	19.0	39
232 (23)	15	Spilling Islets	06/03/84	0607	14					3	5	6	6	15	4	5	4	2				50	20.3	19.0	28
232 (23)	16	Chrow I.	06/03/84	1522	15						5	10	3	7	7	11	6	1				50	20.8	19.0	30

Table 24 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 23, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
232 (23)	17	Twin Rivers	06/03/84	1748	-				Water haul													-	-	-	-
232 (232)	18	Twin Rivers	06/03/84	2055	16					2	8	11	6	7	4	7	2	1	1			49	19.9	19.0	43
232 (23)	19	Twin Rivers	07/03/84	1927	17					2	8	9	5	3	8	8	7					50	20.3	19.0	38
232 (23)	20	Chrow I.	08/03/84	0530	18					1		5	9	8	7	10	6	4				50	21.3	19.0	12
231 (23)	21	Pipestem Inlet	12/03/84	0710	19					1	5	6	7	8	8	10	5					50	20.6	19.0	24
231 (23)	22	Pipestem Inlet	12/03/84	1100	20						5	7	12	8	7	5	2	3		1		50	20.5	19.0	24
232 (23)	23	Stopper I.	12/03/84	1650	-				Water haul													-	-	-	-
231 (23)	24	Pipestem Inlet	12/03/84	1750	21				1	1	8	11	14	8	2	4	1					50	19.4	19.0	42
232 (23)	25	Forbes I.	13/03/84	0825	22					1	2	11	6	9	5	7	7	1	1			50	20.7	19.0	28

Table 25. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT AREAS 23 AND 24, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
243 (24)	1	1/2 mi W. Starling Pt.	25/02/84	1435	1500-2000	75	10	7.2	1	68	41	980	59	2.0	1.69	25	3	7		
243 (24)	2	1/2 mi W. Starling Pt.	25/02/84	1525	1500-2000	100	100	7.2	1	53	51	509	49	6.5	6.70	26	5	1		
									2	49	48	548	52	7.5	7.16	33	3	1		
									3	54	52	493	48	8.0	8.40	28	8	1		
243 (24)	3	1/2 mi W. Starling Pt.	26/02/84	1830	1500-2000	200	100	7.1	1	54	45	651	55	10.5	9.62	50	4	1		
									2	63	58	463	42	6.0	7.11	31	2	1		
									3	63	53	561	47	8.5	9.02	43	2	1		
243 (24)	4	2 mi S. Starling Pt.	28/02/84	1910	2000+	500	100	6.2	1	54	50	545	50	10.0	10.00	47	2			
									2	53	51	501	49	12.5	12.89	49	-			
									3	50	52	474	48	11.0	11.34	39	4			
245 (24)	Dip Net	NE. Dunlap I.	02/03/84	1230				8.3	1	48	53	43-	47	11.5	12.16	43	-			
243 (24)	5	Shelter Inlet	05/03/84	1745					1	79	48	860	52	6.5	6.24	54	2	3		
									2	83	48	908	52	7.0	6.73	62	-	2		2
243 (24)	6	Sydney Inlet	05/03/84	2020				8.7	1	45	42	618	58	10.0	8.70	51	2			
									2	47	42	667	58	13.5	11.56	59	-			
									3	61	52	570	48	9.5	9.83	47	-	1		
243 (24)	7	Sydney Inlet	06/03/84	2005		75	20	-	1	35	38	563	62	14.5	11.79	52	1			
									2	29	32	634	68	15.0	10.95	59	-			
									3	42	46	503	54	14.0	12.89	44	3			
232 (23)	8	Stopper I.	10/03/84	1700		100	100	-	1	48	53	42-	47	12.5	13.38	42	-			
									2	46	46	54-	54	13.0	12.04	53	1			
									3	48	44	615	56	14.5	12.95	56	-			
232 (23)	9[1]	Maggie River	10/03/84	1830		90-100			No information											
232 (23)	10	Stopper I.	11/03/84	0800			25-30	-	- Herring released - too small for charter payment											
231 (23)	11	Pipestem Inlet	11/03/84	1300	1000	Herring were good size and 13% roe yield (released because too many herring)														
231 (23)	12[1]	Pipestem Inlet	11/03/84	1500	1000		30	Herring taken to complete charter payment (approx. 13% roe yield)												

Wheelhouse and Sample Logs were not completed for sets 9 - 11; the above information was obtained from the log book.
[1]Charter payment herring.

Table 26. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 23 AND 24, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
243 (24)	1	1/2 mi W. Starling Pt.	25/02/84	1435	1	No samples taken																-	-	-	-
243 (24)	2	1/2 mi W. Starling Pt.	25/02/84	1525	2					1	1	7	3	6	11	10	8	2	2			51	21.5	19.0	18
243 (24)	3	1/2 mi W. Starling Pt.	26/02/84	1830	3				2	3	5	4	7	6	5	10	6	2				50	20.5	19.0	28
243 (24)	4	2 mi S. Starling Pt.	28/02/84	1910	4					1	2	3	2	8	7	9	12	5	1			50	21.9	19.0	12
245 (24)	Dip Net	NE. Dunlap I.	02/03/84	1230				Herring ball			1	2	7	6	12	14	7	1				50	22.5	19.0	2
243 (24)	5	Shelter Inlet	05/03/84	1745	5				1	12	11	12	3	5	1	2	1	2				50	18.6	19.0	72
243 (24)	6	Sydney Inlet	05/03/84	2020	6					5	5	6	8	6	3	9	5	2	1			50	20.4	19.0	32
243 (24)	7	Sydney Inlet	06/03/84	2005	7						2	2	6	10	7	10	8	5				50	21.6	19.0	8
232 (23)	8	Stopper I.	10/03/84	1700	8	Fragile roe sample																-	-	-	-
	9-12					No samples taken																			

Table 27. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "NITA MARIA", STAT. AREA 25, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
253 (25)	1	Rosa Harbour	27/02/84	1720	1000-1500	25-30	25	8.0	1	66	36	116	64	1.5	1.18	21	12	83	10	
251 (25)	2	Nootka Sound	06/03/84	1446		100	0	-	2	66	38	109	62	2.25	1.81	28	6	75	12	
									-	Water haul										
252 (25)	3	1/2 mi S. Pantoja I's.	07/03/84	0840	100	100	20-30	8.0	1	122	56	96	44	9.8	11.14	80	4	12		
									2	107	50	108	50	10.0	9.96	88	8	12	2	
252 (25)	4	Zuclarte Channel	07/03/84	1055	30-40	30-40	0	8.0	3	115	54	98	46	10.0	10.87	83	2	13		
									-	Water haul										

Gillnet Opening

Management sub-areas 25-13 & 14 (Esperanza) opened on March 5 for 9 hours for a hailed catch of 1,026 tons. The roe yields ranged from 11-14%.

The charter payment herring were taken by the Ocean Horizon in Area 23.

Table 28. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "NITA MARIA", STAT. AREA 25, 1984.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
253 (25)	1	Rosa Harbour	27/02/84	1720	1					9	19	18	9	6	3	1	2					67	18.6	19.0	69
251 (25)	2	Nootka Sound	06/03/84	1446	-				Water haul													-	-	-	-
252 (25)	3	1/2 S. Pantoja I's.	07/03/84	0840	2				2	9	7	24	3	3	2							50	18.2	19.0	84
252 (25)	4	Zuciarte Channel	07/03/84	1055	-				Water haul													-	-	-	-

Appendix Table 1. Onboard sampling instructions.

1. Selection of sample sites

   (a) A list of priority sites will be supplied to charter masters by the district Herring Management Coordinator.

   (b) While the onboard Fisheries Service representative is in charge of all charter operations, consultation with the vessel master is necessary to determine if it is possible to set in any given location at any given time.

2. Number of sample sets

   (a) For each important fishing location, secure 1 or 2 sample sets per visit. (e.g. from Mayne Bay secure one set in the evening and one in the morning, then travel to another location). Each such major location should be resampled at regular intervals.

   (b) If it is evident from echosounding that few fish are present in the major fishing location, immediately go on to the next site.

   (c) Try not to make large sets if the vessel master is confident a good cross section of available fish can be taken in a smaller set.

   (d) Do not set twice on immature (young herring) stocks unless doubt exists that the first set was not representative of stocks in that location.

   (e) Whether or not fish are caught, complete the Wheelhouse and Sample Log after each set; also, note the set in the Daily Log (Black Book).

3. Taking a random sample from the pursed seine

   (a) Dry up the seine only as necessary to obtain samples; push the dip net or brailer vertically deep into the seine, then pull up quickly through a "BOIL" of fish so as to give no advantage to larger, faster fish. Some vessel masters may prefer to pump samples, eliminating much of the "drying up" process.

   (b) Assure yourself of enough fish by taking at least 45 kg (100 lb, 2 or 3 buckets) from each set.

   (c) After obtaining a representative sample, immediately release the remaining fish to minimize scale damage.

   (d) Fill one sample bucket with a random sample of herring; place one completed shipping/sample lable inside and on top of the fish and affix the other to the bucket handle. If sampling is delayed, cover the fish with a tarp to prevent loss to birds.

Appendix Table 1 (cont'd)

(e) Keep samples refrigerated on ice or in chilled seawater .

(f) Caution the vessel master to instruct the crew not to throw any fish overboard or begin salting fish for personal use until Fisheries Service samples have been processed.

4. Processing onboard charter vessel samples

(a) Sample for roe yield using standard volumetric procedures as detailed in the instructions included with the ROE SAMPLE KIT.

(b) Subsample the fish

i) Subsample from herring on deck by filling several buckets with a shovel or dipnet - do not pick out fish individually.

ii) The sampler should face away from the bucket containing fish and drop his hand into it. The first fish touched must be sampled, and each fish thereafter is selected by the same method until the sample is complete (50 fish). If a fish is not suitable for sampling (damaged), discard it and continue.

(c) Measure the fish

i) Tack the waterproof Wheelhouse and Sample Log to the measuring board.

ii) Pencil in the appropriate "cut off" line on the measuring sheet.

iii) Before measuring a fish, use a sharp knife to remove scales from the tail section. This is very important since the length measurement goes to the end of the silvery colour on the skin of the fish and not to the end of the scales which cover the silvery colour on the skin and extend beyond that point.

iv) Measure 50 fish, each from the tip of the lower jaw to the end of the silvery colour on the tail. Every fish length should be recorded by marking the interval it falls into.

(d) IMPORTANT - Please attempt to send the biological samples to Vancouver and Nanaimo before they decompose. Advise by B.C. telephone or radio telephone (to XL177) of when and how the samples are sent, i.e. commercial carrier destination and estimated time of arrival.

Appendix Table 2. The 1984 roe herring cutoff lengths used to separate age 3 herring from older fish.

Statistical Area	Cutoff length
NORTH COAST	
Area 2E	190 mm
2W	200 mm
5	180 mm
6 - 10	185 mm
STRAIT OF GEORGIA	
Areas 14 - 18	190 mm
WEST COAST VANCOUVER ISLAND	
23	190 mm
24	190 mm
25	190 mm
27	190 mm

NOTE: It should be noted that these cutoff lengths are used as reference points only in order to compare different test samples. They are derived from the average lengths of three-year-old fish from the previous year and may or may not reflect the average length this year. In addition, there can be a considerable overlap in size between fish of different ages, so there is no definite length that can be used to separate the two groups of fish. Generally, these cutoff lengths provide additional information on size distribution of the stocks.

An example of the usefulness of these cutoff lengths would be when comparing test sets made at the same location on different days. A large difference in the percentage of fish below the cutoff length may indicate that two different stocks of fish are present or that new fish have moved into the area. This is additional information used to determine the overall stock status.

Appendix Table 3. Instructions for estimating percent roe yield by volume.

This KIT contains:

- one clear plastic volumetric cylinder
- one 18 l (4 imp. gal.) bucket with lid
- instruction sheet with photographs at maturity stages

Determination of roe maturity:

1. Randomly obtain approximately 34 kg (75 lb) of herring from the set or load.
2. Fill the roe test bucket with fish to the top of the bucket.
   Note - The bucket should be filled to overflowing.
3. Determine sex of all fish in the bucket (by squeezing or stripping).
4. Record numbers of each sex on sampling sheet.
5. Strip all roe from females.
6. Record condition of all roe on sampling sheet.

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as MATURE 1 in photograph appended to the ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as IMMATURE 2 in photograph appended to the ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as IMMATURE 3 in photograph appended to the ROE SAMPLE KIT.

7. Deposit all Mature 1 roe into volumetric cylinder. Record the percent recovery from the scale on the side of the cylinder. Also record the number of females in conditions 1, 2 and 3, and record the number of males.
8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

   Also, record the number of spawned out and juvenile/immature herring.

Appendix Table 4. Instructions for estimating percent roe yield by weight.

1. Obtain a random sample of approximately 34 kg (75 lb) of herring from the set or load.

2. Hang the plastic container on the scale and tare the scale.

3. Fill the container with 10 kg (22 lb) of herring.

4. Strip all roe from the females.

5. Record condition of all the roe on the sampling sheet:

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as **MATURE** in photograph appended to ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as **IMMATURE 2** in photograph appended to ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as **IMMATURE 3** in photograph appended to ROE SAMPLE KIT.

6. Tare the scale and deposit all Mature 1 roe into the weighing container; record the weight. If the #1 roe weight is 870 g, the roe yield is 8.7%; if 950 g, the roe yield is 9.5%, etc.

7. Record the number of females with conditions 1, 2 and 3 maturity and record the number of males.

8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

   Also, record the number of spawned out and juvenile/immature herring.

   Important: Check the scale for accuracy periodically using a known weight.

Appendix Table 5. Formula used to adjust roe yields assuming a 50:50 male/female sex ratio.

1. Determine the number of males and females in the roe test sample i.e. 42F, 56M.

2. Determine the % of females in the roe test sample i.e. 42.8% females.

3. Determine the % roe yield i.e. 9%.

   To convert the roe yield to a 50:50 male/female ratio, use the following formula:

$$\frac{\% \text{ roe X } 50}{\% \text{ females}} \quad \text{i.e.} \quad \frac{9 \text{ X } 50}{42.8} = 10.51\%$$

In this example, the roe yield was actually 10.5% assuming a 50:50 male/female sex ratio for the herring stocks in the area.

This information is not to be passed to the Management Coordinator over the R.T. Make reference to the fact the sample is heavy on males or females, but do not adjust the roe yield.

This formula is for your own use only (for interest only).

Appendix Fig. 1a. Wheelhouse and Sample Log - roe yield by volume.

WHEEL HOUSE & SAMPLE LOG

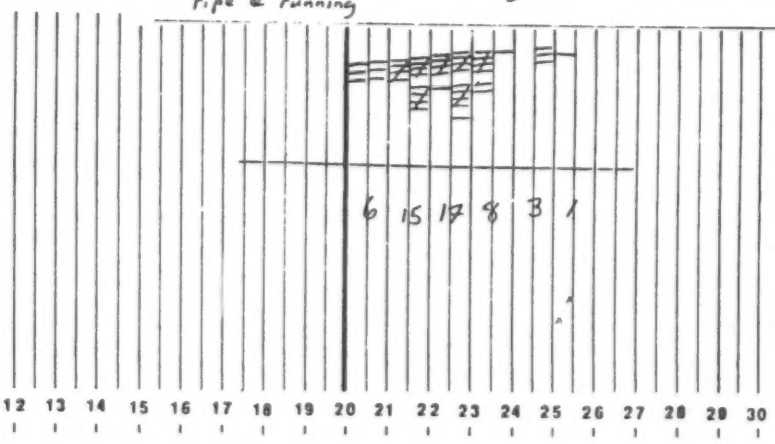
SET INFORMATION

1. Vessel OCEAN MARAUDER 2. Captain LENIC
3. Area 2W (INSKIP CHAN) 4. Location ½ mile E. Hastings Pt.
5. Date: Day 20 Month 3 Year 83
6. Set No. 36 7. Sample No. 25 8. Time Set 0910
9. Sample: a) is V b) is not _____ representative
10. Est. Tons in school set on 300 11. In catch 200
12. Est. Tons in Location 3500 13. Stat Area Do not Know
14. a) Wind Direction & Velocity 0 b) sky 100 % clear
c) other _____ d) Sea Surface Temp. 9.5°C
15. Herring School Behaviour Fast moving schools
16. Incidence of ther species 3-4 Dogfish
17. Summary of On Board Size Measurements:
a) Cutoff length used 200
b) measured 50
c) No. Fish less than cutoff length 0 %
d) Average Size 22.4
Comments RE: HERRING SIZE
Herring seem to have longer girths than normal - fatter

ROE TEST INFORMATION

	TEST 1	TEST 2	TEST 3	Average
a) No. Females cond. 1 Roe	41	49	37	
b) No. Females cond. 2 Roe	0	3	1	
c) No. Females cond. 3 Roe	2	2	2	
d) TOTAL FEMALES	43	54	40	
e) No. of Males	34	34	47	
f) Roe Yield (VOL.)	12.5 %	14.0%	11.0 %	12.5%
g) Roe Yield (WT.)	____ %	____ %	____ %	
h) Total sample weight	____ gm./lb.	____ gm./lb.	____ gm./lb.	
i) Total roe weight	____ gm./lb.	____ gm./lb.	____ gm./lb.	

20. Comments RE: Maturity i.e. Maturity (gonad running or firm) spawning, bird and Sea Lion activity etc.
Some females were running - the males were also ripe & running



Reporting officer:
Joe Blow
Date Reported:
D M Yr
20 March 83
Time: 1030
Reported to:
C. Dimmell

Appendix Fig. 1b. Wheelhouse and Sample Log - roe yield by weight.

WHEEL HOUSE & SAMPLE LOG

SET INFORMATION

1. Vessel PACIFIC QUEST 2. Captain JOHN POLONIO
3. Area 14 (North) 4. Location COMOX HARBOUR
5. Date: Day 27 Month Feb. Year 83
6. Set No. 4 7. Sample No. 4 8. Time Set 0540
9. Sample: a) is V b) is not _____ representative
10. Est. Tons in school set on 300 11. In catch 20
12. Est. Tons in Location 1500 13. Stat Area 3000
14. a) Wind Direction & Velocity SW b) sky 10 % clear
c) other _____ d) Sea Surface Temp. 6.3°C
15. Herring School Behaviour Tight to bottom
16. Incidence of this species 3 Dogfish
17. Summary of On Board Size Measurements:
a) Cutoff length used 190
b) measured 50
c) No. Fish less than cutoff length 0 %
d) Average Size 21.7 cms.

Comments RE: HERRING SIZE

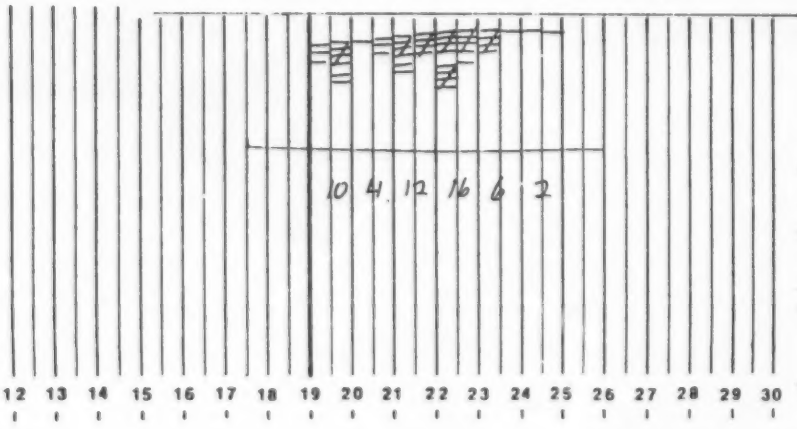
Herring are larger than normal

ROE TEST INFORMATION

	TEST 1	TEST 2	TEST 3	
a) No. Females cond. 1 Roe	30	29	31	
b) No. Females cond. 2 Roe	2	3	4	
c) No. Females cond. 3 Roe	5	5	4	
d) TOTAL FEMALES	39	37	39	
e) No. of Males	38	42	34	Average
f) Roe Yield (VOL.)	____ %	____ %	____ %	____
g) Roe Yield (WT.)	9.8 %	9.05 %	10.75 %	9.9 %
h) Total sample weight	10,000 gm./lb.	10,000 gm./lb.	10,000 gm./lb.	
i) Total roe weight	980 gm./lb.	905 gm./lb.	1075 gm./lb.	

20 Comments RE: Maturity i.e. Maturity (gonad running or firm) spawning, bird and Sea Lion activity etc.

Many of the females are running = Males also running

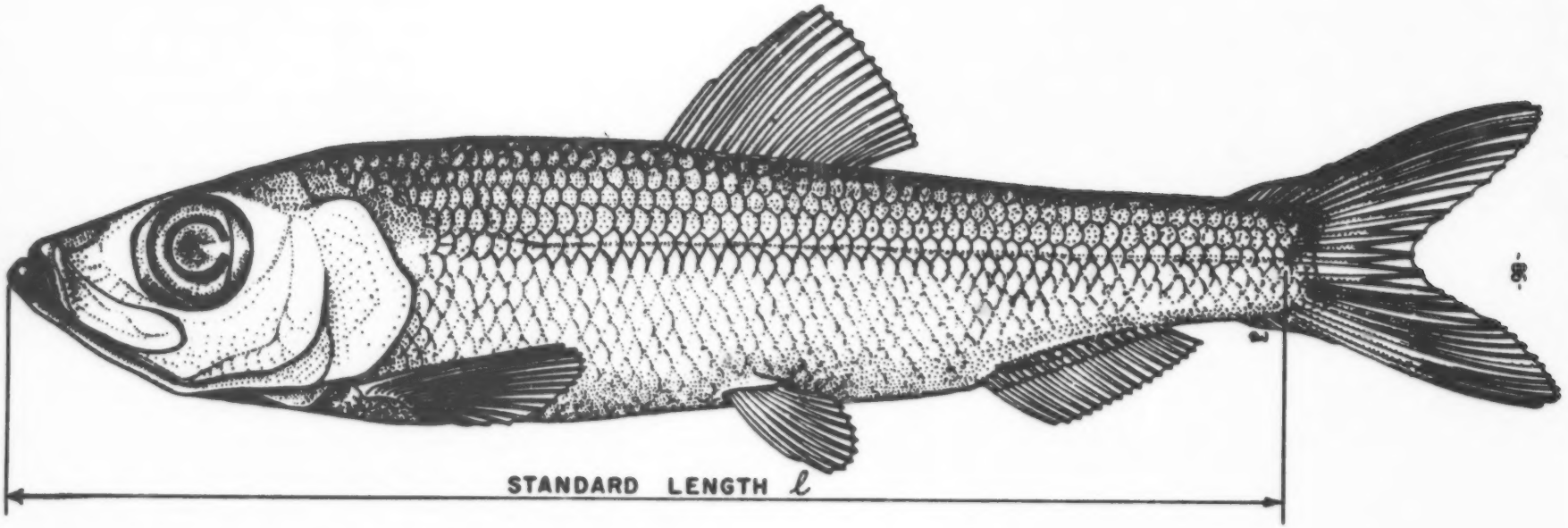


Reporting officer:
Ken Penny

Date Reported:
D M Yr
27 Feb. 83

Time: 0600

Reported to:
Lyle Fresman



Appendix Fig. 2. The standard length measurement ℓ used for measuring herring. This length is defined as the distance from the anterior tip of the fish with the mouth closed, to the end of the silver skin on the caudal peduncle. It is important to scrape the scales off the peduncle area to find the end of the silvery portion of the skin.